

AFGHAN NATIONAL POLICE

STANDARD BUILDING DESIGNS

TRAINING BUILDING - ELECTRIC HEAT OPTION

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US Army Corps
of Engineers

Afghanistan
Engineer
District

[illegible]

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AFGHAN NATIONAL POLICE
STANDARD DESIGN
TRAINING BUILDING
ELECTRIC HEAT OPTION
COVER SHEET

SHEET
REFERENCE
NUMBER:

G1

100% SUBMISSION

	A	B	C	D	E	F	G	H	
	STRUCTURAL ABBREVIATIONS:		GENERAL NOTES						
6	ACI AISC ALT ASTM AWS ARCH B BLDG BOTT CL CFMF CFS CIP CIPL CJ CLG CLR CMU COEFF COL CONC CONT COORD CSJ CTJ DIA DIAG DIM DWG DWL EA ELEC ELEV EMBED EQUIV ETC E.W. EXT FTG GA HORIZ HRS IBC INT Kg KIP kN kPa L# LLV M MAX MBM MBMA	AMERICAN CONCRETE INSTITUTE AMERICAN INSTITUTE OF STEEL CONSTRUCTION ALTERNATE AMERICAN SOCIETY FOR TESTING AND MATERIALS AMERICAN WELDING SOCIETY ARCHITECTURAL BOTTOM BUILDING BOTTOM CENTER LINE COLD FORM METAL FRAME COLD FORMED STEEL CAST IN PLACE CAST-IN-PLACE INTEL CONTROL JOINT CEILING CLEAR CONCRETE MASONRY UNIT COEFFICIENT COLUMN CONCRETE CONTINUOUS COORDINATE CONSTRUCTION JOINT CONTROL JOINT DIAMETER DIAGONAL DIMENSION DRAWING DOWEL EACH ELECTRICAL ELEVATION EMBEDMENT EQUIVALENT ET CETERA EACH WAY EXTERIOR FOOTING GAUGE HORIZONTAL HOURS INTERNATIONAL BUILDING CODE INTERIOR KILOGRAM KIPS (1 KIP = 1,000 POUNDS) KILONEWTON KILOPASCAL ANGLE (# INDICATES SIZE) LONG LEG VERTICAL METER MAXIMUM METAL BUILDING MANUFACTURER METAL BUILDING MANUFACTURERS ASSOCIATION MECHANICAL MANUFACTURER MIDDLE MINIMUM MISCELLANEOUS MILLIMETER MEGAPASCAL METAL MAIN WIND FORCE RESISTING SYSTEM NEWTON NORTH NOT APPLICABLE NUMBER SYMBOL FOR REBAR SIZE NOT TO SCALE ON CENTER OPENING PLATE PRE-ENGINEERED REINFORCED REQUIRED SIMILAR SPECIFICATIONS STANDARD STRUCTURAL TOP TOP OF TOP ELEVATION TOP AND BOTTOM THICK TRADE MARK TYPICAL UNIFIED FACILITIES CRITERIA UNLESS OTHERWISE NOTED VERTICAL WIDTH WITH	1.0 THIS PROJECT HAS BEEN DESIGNED FOR THE WEIGHTS AND MATERIALS INDICATED ON THE SHEETS AND FOR THE LIVE LOADS INDICATED IN THE DESIGN CRITERIA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALLOWABLE CONSTRUCTION LOADS AND TO PROVIDE PROPER DESIGN AND CONSTRUCTION OF FALSEWORK, FORMWORK, STAGING, BRACING, SHEETING AND SHORING, ETC. 1.1 COORDINATE THESE SHEETS WITH THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND CIVIL SHEETS. ALL DIMENSIONS SHOWN ON THE SHEETS ARE MILLIMETERS UNLESS NOTED OTHERWISE. 1.2 THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL FLOOR AND ROOF OPENING SIZES AND LOCATIONS, EQUIPMENT PAD SIZES AND LOCATIONS, ANCHOR BOLT LAYOUTS, ETC WITH EQUIPMENT SELECTED. THE CONTRACTOR SHALL MAKE ANY REQUIRED MODIFICATIONS AT NO ADDITIONAL COST. 1.3 THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING SHEETS FOR SLEEVES, CURBS, INSERTS OR OPENINGS, ETC. NOT HEREIN INDICATED. 1.4 SLAB OPENINGS SMALLER THAN 250mm DIA TO BE CORE DRILLED IN FIELD UON. SEE MECHANICAL, ELECTRICAL AND PLUMBING SHEETS FOR LOCATIONS OF THESE OPENINGS. 1.5 WORK NOT INCLUDED ON THE SHEETS BUT IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING PLACES ELSEWHERE ON THE SHEETS SHALL BE REPEATED. 1.6 IN CASE OF CONFLICT BETWEEN THE NOTES, DETAILS AND SPECIFICATIONS THE MOST RIGID REQUIREMENTS SHALL GOVERN. 1.7 SEE ARCHITECTURAL SHEETS FOR LOCATIONS OF MASONRY AND DRYWALL NON-LOAD BEARING PARTITIONS. PROVIDE COMPRESSIBLE FIRESAFING AT TOP OF WALL AS REQUIRED BY ARCHITECTURAL SHEETS. 1.8 COORDINATE FINISHED FLOOR DATUM ELEVATION 0.0m WITH THE CIVIL SHEETS. 1.9 DESIGN PRE-ENGINEERED METAL BUILDINGS IN ACCORDANCE W/ MBMA LATEST EDITION PER DESIGN CRITERIA ON SHEET S2. 2.0 FOUNDATION NOTES 2.1 THE GEOTECHNICAL ANALYSIS FOR THIS PROJECT IS THE RESPONSIBILITY OF THE CONTRACTOR AWARDED THE WORK. 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SEE PROJECT SPECIFICATIONS. 2.4 NO FOOTINGS OR SLABS SHALL BE POURED INTO OR AGAINST SUBGRADE CONTAINING FREE WATER, FROST, ICE OR LOOSE MATERIAL. FROST DEPTH ASSUMED TO BE 800MM 2.5 ALL SLAB-ON-GRADE, TRENCH BOTTOMS AND OTHER ON-GRADE INTERIOR HORIZONTAL SURFACES SHALL BE PLACED OVER A 0.25mm VAPOR RETARDER OVER A 100mm #57 STONE WATER BARRIER PLACED ON SUBGRADE PROPERLY PREPARED IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. (UON) 2.6 SEE PLUMBING, ELECTRICAL & CIVIL SHEETS FOR REQUIRED UNDERSLAB UTILITIES. 2.7 SEE ARCHITECTURAL SHEETS FOR ALL WATERPROOFING DETAILS AND MATERIALS. 2.8 IF UNDERMINING OF FOOTINGS OCCURS, FILL VOIDS WITH 15MPa CONCRETE. DO NOT ATTEMPT TO REPLACE AND RECOMPACT SOIL. 3.0 CONCRETE 3.1 CONCRETE SHALL HAVE THE UNIT WEIGHT AND THE MINIMUM COMPRESSIVE STRENGTHS (f'c) AT 28 DAYS AS SHOWN IN THE CONCRETE MATERIALS SCHEDULE ON SHEET S3. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION. ENTRAIN AIR TO PRODUCE TOTAL AIR CONTENT ACCORDING TO THE SPECIFICATIONS FOR CONCRETE EXPOSED TO FREEZING TEMPERATURES (EXTERIOR FOOTINGS, SLAB TURNDOWNS, EXTERIOR SLABS AND SLABS-ON-GRADE, EXTERIOR RETAINING WALLS, AND EXTERIOR GRADE BEAMS.) 3.2 GROUT FOR BASE PLATES SHALL BE NON-SHRINKABLE GROUT AND SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH AT 28 DAYS OF 35MPa, UNLESS NOTED OTHERWISE. 3.3 NO CALCIUM CHLORIDE SHALL BE USED IN ANY CONCRETE. 3.4 MIXING, TRANSPORTING AND PLACING OF CONCRETE SHALL CONFORM TO ACI 301M-05	3.5 ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN CONCRETE INSTITUTE (ACI) 318M MANUAL (metric), "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", AND REQUIREMENTS OUTLINED IN THE CONTRACT SPECIFICATIONS. WHEN THERE IS A CONFLICT BETWEEN ACI AND THE SPECIFICATIONS, THE MORE STRINGENT SHALL GOVERN. 3.6 CHAMFER ALL EXPOSED EXTERNAL CORNERS OF CONCRETE WITH 20mm x45 DEGREE CHAMFER UON. 3.7 CONCRETE REINFORCEMENT BARS SHALL CONFORM TO ASTM A615M-96a, GRADE 420. REINFORCING BARS SHALL NOT BE TACK WELDED, WELDED, HEATED OR CUT, UNLESS INDICATED ON THE CONTRACT DOCUMENTS. ALL LAP SPLICES SHALL BE CLASS "B" UON. 3.8 HORIZONTAL FOOTING AND HORIZONTAL WALL REINFORCEMENT SHALL BE CONTINUOUS AND SHALL HAVE 90 DEGREE BENDS AND EXTENSIONS, OR CORNER BARS OF EQUIVALENT SIZE LAPPED WITH A CLASS B TENSION SPLICE AT CORNERS AND INTERSECTIONS. TOP BAR CRITERIA SHALL APPLY IF 300mm OR MORE OF FRESH CONCRETE IS PLACED BELOW BAR. 3.9 SLABS-ON-GRADE SHALL HAVE CONSTRUCTION JOINTS OR CRACK CONTROL JOINTS AS SHOWN ON THE SHEETS. CONSTRUCTION JOINTS CAN BE USED AT CONTROL JOINT LOCATIONS AT CONTRACTORS OPTION. SEE SLAB PLANS & JOINT DETAILS FOR ADDITIONAL INFORMATION. FOR AREAS NOT SHOWN ON SHEETS, THE MAXIMUM SPACING OF CONSTRUCTION/ CRACK CONTROL JOINTS SHALL BE 4800mm 3.10 SEE SPECIFICATIONS FOR ALL WATERPROOFING/DAMPPOOFING REQUIREMENTS. 3.11 ALL CONCRETE REINFORCEMENT SHALL BE DETAILED, FABRICATED, LABELED, SUPPORTED, AND SPACED IN FORMS AND SECURED IN PLACE IN ACCORDANCE WITH THE PROCEDURES AND REQUIREMENTS OUTLINED IN THE LATEST EDITION OF THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", ACI 318M, AND THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315M, LATEST EDITION. 3.12 SHOP DRAWINGS SHOWING REINFORCING DETAILS, INCLUDING STEEL SIZES, SPACING AND PLACEMENT, SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION. 3.13 ALL DOWELS SHALL MATCH SIZE AND NUMBER OF MAIN REINFORCING, UNLESS NOTED OTHERWISE ON SHEETS. 3.14 ADDITIONAL BARS SHALL BE PROVIDED AROUND ALL FLOOR AND WALL OPENINGS AS SHOWN ON THE SHEETS. 3.15 SEE ARCHITECTURAL SHEETS FOR TYPE AND LOCATION OF ALL FLOOR FINISHES. 3.16 THE CONTRACTOR SHALL COORDINATE ADDITIONAL WALL/SLAB OPENINGS NOT SHOWN ON STRUCTURAL SHEETS. SEE MECHANICAL, ELECTRICAL, PLUMBING AND CIVIL SHEETS. 3.17 UNLESS NOTED OTHERWISE, ALL CURBS SHALL BE REINFORCED WITH AT LEAST (1)-#13 CONTINUOUS AND #13 AT 300mm O.C. DOWELS TO STRUCTURE BELOW. 3.18 THE SUB-CONTRACTOR SHALL VERIFY ALL OPENINGS, PAD SIZES, AND ANCHOR BOLTS WITH EQUIPMENT SELECTED. 3.19 FOR ALL WALLS & PIERS, PROVIDE DOWELS INTO FOOTING AT EACH VERT REINF BAR, UON DOWEL SIZE SHALL BE SAME AS VERT REINF. 3.20 ALL DEFORMED BAR ANCHORS SHALL BE TRS NELSON DIVISION OR EQUAL 15mm DIA (UON) CONFORMING TO ASTM A-496M WITH A MINIMUM TENSILE STRENGTH OF 550 MPa. INSTALL ANCHORS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS BY AUTOMATIC END WELDING AS INDICATED ON THE DRAWINGS. NO UNAUTHORIZED OR FIELD WELDING SHALL BE MADE WITHOUT AUTHORIZATION FROM THE MANUFACTURER. 3.21 ALL REINFORCING INDICATED TO BE WELDED SHALL BE IN ACCORDANCE WITH ASTM A706M. "LOW ALLOY STEEL DEFORMED BARS FOR CONCRETE REINFORCEMENT". ANY INSTALLATIONS USING MANUFACTURER'S EQUIPMENT SHALL BE PER MANUFACTURER'S RECOMMENDATIONS. 3.22 PROVIDE CONCRETE POUR STOPS OR FORMS AS REQUIRED FOR INSTALLATION OF ALL CONCRETE WORK. 3.23 PROVIDE ADDITIONAL (2)-#13 x 600mm REINFORCING BARS IN SLAB-ON-GRADE AT ALL RE-ENTRANT CORNERS. PLACE BARS AT MID-DEPTH OF SLAB WITH A CLEARANCE OF 50mm FROM CORNER UON.	4.0 CONCRETE MASONRY 4.1 MASONRY CONSTRUCTION AND MATERIALS SHALL CONFORM TO ALL REQUIREMENTS OF THESE CONTRACT DOCUMENTS AND THE PROJECT SPECIFICATIONS. 4.2 THE SPECIFIED ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE MASONRY (f'm) ON THE NET AREA IS A MINIMUM OF 10.4 MPa. 4.3 PROVIDE TWO #16 BARS CONTINUOUS IN ALL CMU AND CAST-IN-PLACE BOND BEAMS UON ON THE SHEETS. BOND BEAMS SHALL BE CONTINUOUS AND SPACED AT A MAXIMUM OF 1200mm OC VERTICALLY. ALL BOND BEAMS SHALL BE A MINIMUM OF 200mm IN DEPTH WITH REINFORCING BEING CONTINUOUS AND HAVING STANDARD ACI HOOKS AT EACH END. PROVIDE STANDARD BAR SPLICES AS SPECIFIED.	4.4 FOR MINIMUM WALL REINFORCING, SEE MIN CMU WALL REINFORCING DETAILS ON SHEET S9. 4.5 CMU CELLS THAT REQUIRE VERTICAL REINFORCING BARS AS INDICATED ON THE CONTRACT DRAWINGS AND/OR SPECS SHALL HAVE REINF BAR PLACED IN CENTERS OF CMU CELLS AND CONTINUOUSLY GROUTED UON. 4.6 PROVIDE LADDER TYPE JOINT REINFORCEMENT AT 200mm FOR EXTERIOR & 400mm FOR INTERIOR ON CENTER MAXIMUM, UON MINIMUM ROD SIZE USED SHALL BE 9 GA. DEFORMED WIRE AND CONFORM TO ASTM A82M, UON. 4.7 PROVIDE CONTROL JOINTS AS INDICATED ON THE ARCHITECTURAL SHEETS. 4.8 GROUT FOR MASONRY SHALL BE NORMAL WEIGHT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 25 MPa AT 28 DAYS. GROUT SHALL CONFORM TO ASTM C476M. GROUT LIFTS SHALL NOT EXCEED 1400mm. 4.9 USE MORTAR TYPE S CONFORMING TO ASTM C270M, SEE SPECIFICATIONS. 4.10 CONCRETE MASONRY UNITS SHALL BE NORMAL WEIGHT AND CONFORM TO ASTM C90M. 4.11 ALL CMU CELLS, OPEN CAVITIES, AND AIR SPACES SHALL BE GROUTED. TO STOP FRAGMENTS FROM MORTAR BLAST 4.12 BOND BEAM REINFORCING SHALL BE DISCONTINUOUS AT CONTROL JOINTS (UON). MAXIMUM CONTROL JOINT SPACING SHALL BE AS INDICATED ON THE ARCHITECTURAL SHEETS. 4.13 CONTRACTOR SHALL COORDINATE LOCATION OF ALL OPENINGS SEE ARCH, MECH, ELEC, AND PLUMBING SHEETS. FOR SIZE AND LOCATION OF OPENINGS. 4.14 MASONRY WALLS SHALL NOT BE BACK FILLED PRIOR TO THE MORTAR AND GROUT ATTAINING THEIR RESPECTIVE MAXIMUM DESIGN STRENGTHS PER SPECIFICATIONS. 5.0 STEEL DECK 5.1 STEEL DECK SHALL BE ASTM A611M, GRADES C & D OR A653 STRUCTURAL QUALITY HAVING A MINIMUM YIELD STRENGTH OF 345 MPa AS PER THE STEEL DECK INSTITUTE (SDI) DESIGN MANUAL. 5.2 STEEL DECK SHALL BE ERECTED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND ERECTION LAYOUTS AND CONNECTED TO SUPPORTING MEMBERS AS INDICATED. 5.3 COMPOSITE FLOOR DECK 5.3.1 STEEL FLOOR DECK SHALL BE 51mm RIB HEIGHT, 18 GA HOT-DIP GALVANIZED (SDI TYPE 2VLI-18) UON. 5.3.2 FLOOR DECK SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: <div><div></div><div><div>18 GAUGE</div><div>MOMENT OF INERTIA, Ip760mm4/mm WIDTH</div><div>SECTION MODULUS (TOP OF DECK), Sn27.5mm3/mm WIDTH</div><div>SECTION MODULUS (BOTT OF DECK) Sp27.8mm3/mm WIDTH</div></div></div>	6.5.1 UNLESS NOTED OTHERWISE AS THUS: (##kN), CONNECTIONS SHALL BE DESIGNED AND DETAILED FOR THE END REACTION DETERMINED FROM PART 2 - "ALLOWABLE UNIFORM LOAD TABLES" FROM THE AISC STEEL CONSTRUCTION MANUAL 13TH EDITION OR A MINIMUM OF 54 kN WHICH EVER IS GREATER. 6.6 ALL MEMBERS AND CONNECTIONS ON THE CONTRACT DRAWINGS AND CONNECTIONS NOT SHOWN SHALL BE DESIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER, DETAILED AND SUBMITTED FOR APPROVAL AND SHOWN ON THE SHOP DRAWINGS. 6.7 ALTERNATIVE CONNECTION DETAILS MAY BE SUBMITTED ON SHOP DRAWINGS BY THE CONTRACTOR ONLY IF ACCOMPANIED BY COMPLETE STRUCTURAL CALCULATIONS PREPARED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER AND SUBMITTED FOR REVIEW. 6.8 CALCULATIONS FOR DETAILS MUST SHOW A RATIONAL ANALYSIS OF A COMPLETE LOAD PATH, INCLUDING LOCAL EFFECTS ON WEBS, FLANGES, ETC OF THE CONNECTED MEMBERS AND THE DEVICES (PLATES, SEATS, BRACKETS, BOLTS, WEBS, ETC) AFFECTING ALL CONNECTIONS. FAILURE TO SUBMIT SUCH CALCULATIONS FOR REVIEW CONCURRENT WITH SHOP DRAWING ERECTION PLANS AND DETAILS WILL BE CAUSE FOR REJECTION OF THAT SUBMITTAL. 6.8.1 ALL SHEAR TAB CONNECTIONS SUBMITTED AS AN ALTERNATE FOR APPROVAL SHALL BE DESIGNED USING A FLEXIBLE SUPPORT CONDITION. 6.8.2 BEAM AND GIRDER CONNECTIONS SHALL BE DESIGNED SUCH THAT ALL ADDITIONAL STRESSES DUE TO CONNECTION ECCENTRICITY SHALL BE DEVELOPED BY THE CONNECTION AND NOT INDUCE ANY ADDITIONAL STRESSES INTO SUPPORTING MEMBERS. 6.9 STRUCTURAL STEEL DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO THE AISC "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS - ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN" AND THE AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" - LATEST EDITIONS. 6.10 WELDING SHALL CONFORM TO THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE AWS D1.1. ELECTRODES FOR SHOP AND FIELD WELDS SHALL BE CLASS E70XX. ALL WELDING SHALL BE DONE BY QUALIFIED, CERTIFIED WELDERS PER THE ABOVE STANDARD. 6.11 SHOP AND FIELD TESTING OF WELDS AND BOLTS SHALL BE AS OUTLINED IN THE SPECIFICATIONS. 6.12 ALL FILLET WELDS SHALL BE A MINIMUM OF 5mm UNLESS NOTED OTHERWISE 6.13 THERE SHALL BE NO FIELD CUTTING OF STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT PRIOR APPROVAL OF THE CONTRACTING OFFICER. 6.14 FOR FLOOR AND ROOF OPENINGS, THE FABRICATOR SHALL VERIFY OPENING LOCATIONS WITH EQUIPMENT SELECTED AND MAKE ANY NECESSARY MODIFICATIONS AT NO ADDITIONAL COST. THE CONTRACTOR SHALL COORDINATE MECHANICAL UNITS AND OPENINGS & ARCHITECTURAL ITEMS REQUIRED FOR COMPLETE INSTALLATION OF WORK. IT IS THE RESPONSIBILITY OF FABRICATOR TO RECEIVE ALL NECESSARY INFORMATION PRIOR TO FABRICATION OF THE STEEL. 6.15 ALL STRUCTURAL STEEL SHALL BE PRIMED AS PER THE SPECIFICATIONS. 6.16 ALL PLATES NOT INDICATED SHALL BE 13mm MIN THICKNESS. ALL ANGLES NOT INDICATED SHALL BE 76x76x7.9 MIN. ALL WELDS NOT INDICATED SHALL BE 6mm MIN ALL AROUND UON. 6.17 SEE MECHANICAL, ELECTRICAL, AND PLUMBING SHEETS FOR ADDITIONAL OPENINGS NOT SHOWN. ALL OPENINGS SHALL BE FRAMED 4 SIDES WITH C200x17'S UON.		
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SEE PROJECT SPECIFICATIONS. 2.4 NO FOOTINGS OR SLABS SHALL BE POURED INTO OR AGAINST SUBGRADE CONTAINING FREE WATER, FROST, ICE OR LOOSE MATERIAL. FROST DEPTH ASSUMED TO BE 800MM 2.5 ALL SLAB-ON-GRADE, TRENCH BOTTOMS AND OTHER ON-GRADE INTERIOR HORIZONTAL SURFACES SHALL BE PLACED OVER A 0.25mm VAPOR RETARDER OVER A 100mm #57 STONE WATER BARRIER PLACED ON SUBGRADE PROPERLY PREPARED IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. (UON) 2.6 SEE PLUMBING, ELECTRICAL & CIVIL SHEETS FOR REQUIRED UNDERSLAB UTILITIES. 2.7 SEE ARCHITECTURAL SHEETS FOR ALL WATERPROOFING DETAILS AND MATERIALS. 2.8 IF UNDERMINING OF FOOTINGS OCCURS, FILL VOIDS WITH 15MPa CONCRETE. DO NOT ATTEMPT TO REPLACE AND RECOMPACT SOIL. 3.0 CONCRETE 3.1 CONCRETE SHALL HAVE THE UNIT WEIGHT AND THE MINIMUM COMPRESSIVE STRENGTHS (f'c) AT 28 DAYS AS SHOWN IN THE CONCRETE MATERIALS SCHEDULE ON SHEET S3. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION. ENTRAIN AIR TO PRODUCE TOTAL AIR CONTENT ACCORDING TO THE SPECIFICATIONS FOR CONCRETE EXPOSED TO FREEZING TEMPERATURES (EXTERIOR FOOTINGS, SLAB TURNDOWNS, EXTERIOR SLABS AND SLABS-ON-GRADE, EXTERIOR RETAINING WALLS, AND EXTERIOR GRADE BEAMS.) 3.2 GROUT FOR BASE PLATES SHALL BE NON-SHRINKABLE GROUT AND SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH AT 28 DAYS OF 35MPa, UNLESS NOTED OTHERWISE. 3.3 NO CALCIUM CHLORIDE SHALL BE USED IN ANY CONCRETE. 3.4 MIXING, TRANSPORTING AND PLACING OF CONCRETE SHALL CONFORM TO ACI 301M-05	3.5 ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN CONCRETE INSTITUTE (ACI) 318M MANUAL (metric), "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", AND REQUIREMENTS OUTLINED IN THE CONTRACT SPECIFICATIONS. WHEN THERE IS A CONFLICT BETWEEN ACI AND THE SPECIFICATIONS, THE MORE STRINGENT SHALL GOVERN. 3.6 CHAMFER ALL EXPOSED EXTERNAL CORNERS OF CONCRETE WITH 20mm x45 DEGREE CHAMFER UON. 3.7 CONCRETE REINFORCEMENT BARS SHALL CONFORM TO ASTM A615M-96a, GRADE 420. REINFORCING BARS SHALL NOT BE TACK WELDED, WELDED, HEATED OR CUT, UNLESS INDICATED ON THE CONTRACT DOCUMENTS. ALL LAP SPLICES SHALL BE CLASS "B" UON. 3.8 HORIZONTAL FOOTING AND HORIZONTAL WALL REINFORCEMENT SHALL BE CONTINUOUS AND SHALL HAVE 90 DEGREE BENDS AND EXTENSIONS, OR CORNER BARS OF EQUIVALENT SIZE LAPPED WITH A CLASS B TENSION SPLICE AT CORNERS AND INTERSECTIONS. TOP BAR CRITERIA SHALL APPLY IF 300mm OR MORE OF FRESH CONCRETE IS PLACED BELOW BAR. 3.9 SLABS-ON-GRADE SHALL HAVE CONSTRUCTION JOINTS OR CRACK CONTROL JOINTS AS SHOWN ON THE SHEETS. CONSTRUCTION JOINTS CAN BE USED AT CONTROL JOINT LOCATIONS AT CONTRACTORS OPTION. SEE SLAB PLANS & JOINT DETAILS FOR ADDITIONAL INFORMATION. FOR AREAS NOT SHOWN ON SHEETS, THE MAXIMUM SPACING OF CONSTRUCTION/ CRACK CONTROL JOINTS SHALL BE 4800mm 3.10 SEE SPECIFICATIONS FOR ALL WATERPROOFING/DAMPPOOFING REQUIREMENTS. 3.11 ALL CONCRETE REINFORCEMENT SHALL BE DETAILED, FABRICATED, LABELED, SUPPORTED, AND SPACED IN FORMS AND SECURED IN PLACE IN ACCORDANCE WITH THE PROCEDURES AND REQUIREMENTS OUTLINED IN THE LATEST EDITION OF THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", ACI 318M, AND THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315M, LATEST EDITION. 3.12 SHOP DRAWINGS SHOWING REINFORCING DETAILS, INCLUDING STEEL SIZES, SPACING AND PLACEMENT, SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION. 3.13 ALL DOWELS SHALL MATCH SIZE AND NUMBER OF MAIN REINFORCING, UNLESS NOTED OTHERWISE ON SHEETS. 3.14 ADDITIONAL BARS SHALL BE PROVIDED AROUND ALL FLOOR AND WALL OPENINGS AS SHOWN ON THE SHEETS. 3.15 SEE ARCHITECTURAL SHEETS FOR TYPE AND LOCATION OF ALL FLOOR FINISHES. 3.16 THE CONTRACTOR SHALL COORDINATE ADDITIONAL WALL/SLAB OPENINGS NOT SHOWN ON STRUCTURAL SHEETS. SEE MECHANICAL, ELECTRICAL, PLUMBING AND CIVIL SHEETS. 3.17 UNLESS NOTED OTHERWISE, ALL CURBS SHALL BE REINFORCED WITH AT LEAST (1)-#13 CONTINUOUS AND #13 AT 300mm O.C. DOWELS TO STRUCTURE BELOW. 3.18 THE SUB-CONTRACTOR SHALL VERIFY ALL OPENINGS, PAD SIZES, AND ANCHOR BOLTS WITH EQUIPMENT SELECTED. 3.19 FOR ALL WALLS & PIERS, PROVIDE DOWELS INTO FOOTING AT EACH VERT REINF BAR, UON DOWEL SIZE SHALL BE SAME AS VERT REINF. 3.20 ALL DEFORMED BAR ANCHORS SHALL BE TRS NELSON DIVISION OR EQUAL 15mm DIA (UON) CONFORMING TO ASTM A-496M WITH A MINIMUM TENSILE STRENGTH OF 550 MPa. INSTALL ANCHORS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS BY AUTOMATIC END WELDING AS INDICATED ON THE DRAWINGS. NO UNAUTHORIZED OR FIELD WELDING SHALL BE MADE WITHOUT AUTHORIZATION FROM THE MANUFACTURER. 3.21 ALL REINFORCING INDICATED TO BE WELDED SHALL BE IN ACCORDANCE WITH ASTM A706M. "LOW ALLOY STEEL DEFORMED BARS FOR CONCRETE REINFORCEMENT". ANY INSTALLATIONS USING MANUFACTURER'S EQUIPMENT SHALL BE PER MANUFACTURER'S RECOMMENDATIONS. 3.22 PROVIDE CONCRETE POUR STOPS OR FORMS AS REQUIRED FOR INSTALLATION OF ALL CONCRETE WORK. 3.23 PROVIDE ADDITIONAL (2)-#13 x 600mm REINFORCING BARS IN SLAB-ON-GRADE AT ALL RE-ENTRANT CORNERS. PLACE BARS AT MID-DEPTH OF SLAB WITH A CLEARANCE OF 50mm FROM CORNER UON.	4.0 CONCRETE MASONRY 4.1 MASONRY CONSTRUCTION AND MATERIALS SHALL CONFORM TO ALL REQUIREMENTS OF THESE CONTRACT DOCUMENTS AND THE PROJECT SPECIFICATIONS. 4.2 THE SPECIFIED ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE MASONRY (f'm) ON THE NET AREA IS A MINIMUM OF 10.4 MPa. 4.3 PROVIDE TWO #16 BARS CONTINUOUS IN ALL CMU AND CAST-IN-PLACE BOND BEAMS UON ON THE SHEETS. BOND BEAMS SHALL BE CONTINUOUS AND SPACED AT A MAXIMUM OF 1200mm OC VERTICALLY. ALL BOND BEAMS SHALL BE A MINIMUM OF 200mm IN DEPTH WITH REINFORCING BEING CONTINUOUS AND HAVING STANDARD ACI HOOKS AT EACH END. PROVIDE STANDARD BAR SPLICES AS SPECIFIED.	4.4 FOR MINIMUM WALL REINFORCING, SEE MIN CMU WALL REINFORCING DETAILS ON SHEET S9. 4.5 CMU CELLS THAT REQUIRE VERTICAL REINFORCING BARS AS INDICATED ON THE CONTRACT DRAWINGS AND/OR SPECS SHALL HAVE REINF BAR PLACED IN CENTERS OF CMU CELLS AND CONTINUOUSLY GROUTED UON. 4.6 PROVIDE LADDER TYPE JOINT REINFORCEMENT AT 200mm FOR EXTERIOR & 400mm FOR INTERIOR ON CENTER MAXIMUM, UON MINIMUM ROD SIZE USED SHALL BE 9 GA. DEFORMED WIRE AND CONFORM TO ASTM A82M, UON. 4.7 PROVIDE CONTROL JOINTS AS INDICATED ON THE ARCHITECTURAL SHEETS. 4.8 GROUT FOR MASONRY SHALL BE NORMAL WEIGHT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 25 MPa AT 28 DAYS. GROUT SHALL CONFORM TO ASTM C476M. GROUT LIFTS SHALL NOT EXCEED 1400mm. 4.9 USE MORTAR TYPE S CONFORMING TO ASTM C270M, SEE SPECIFICATIONS. 4.10 CONCRETE MASONRY UNITS SHALL BE NORMAL WEIGHT AND CONFORM TO ASTM C90M. 4.11 ALL CMU CELLS, OPEN CAVITIES, AND AIR SPACES SHALL BE GROUTED. TO STOP FRAGMENTS FROM MORTAR BLAST 4.12 BOND BEAM REINFORCING SHALL BE DISCONTINUOUS AT CONTROL JOINTS (UON). MAXIMUM CONTROL JOINT SPACING SHALL BE AS INDICATED ON THE ARCHITECTURAL SHEETS. 4.13 CONTRACTOR SHALL COORDINATE LOCATION OF ALL OPENINGS SEE ARCH, MECH, ELEC, AND PLUMBING SHEETS. FOR SIZE AND LOCATION OF OPENINGS. 4.14 MASONRY WALLS SHALL NOT BE BACK FILLED PRIOR TO THE MORTAR AND GROUT ATTAINING THEIR RESPECTIVE MAXIMUM DESIGN STRENGTHS PER SPECIFICATIONS. 5.0 STEEL DECK 5.1 STEEL DECK SHALL BE ASTM A611M, GRADES C & D OR A653 STRUCTURAL QUALITY HAVING A MINIMUM YIELD STRENGTH OF 345 MPa AS PER THE STEEL DECK INSTITUTE (SDI) DESIGN MANUAL. 5.2 STEEL DECK SHALL BE ERECTED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND ERECTION LAYOUTS AND CONNECTED TO SUPPORTING MEMBERS AS INDICATED. 5.3 COMPOSITE FLOOR DECK 5.3.1 STEEL FLOOR DECK SHALL BE 51mm RIB HEIGHT, 18 GA HOT-DIP GALVANIZED (SDI TYPE 2VLI-18) UON. 5.3.2 FLOOR DECK SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: <div><div></div><div><div>18 GAUGE</div><div>MOMENT OF INERTIA, Ip760mm4/mm WIDTH</div><div>SECTION MODULUS (TOP OF DECK), Sn27.5mm3/mm WIDTH</div><div>SECTION MODULUS (BOTT OF DECK) Sp27.8mm3/mm WIDTH</div></div></div>	6.5.1 UNLESS NOTED OTHERWISE AS THUS: (##kN), CONNECTIONS SHALL BE DESIGNED AND DETAILED FOR THE END REACTION DETERMINED FROM PART 2 - "ALLOWABLE UNIFORM LOAD TABLES" FROM THE AISC STEEL CONSTRUCTION MANUAL 13TH EDITION OR A MINIMUM OF 54 kN WHICH EVER IS GREATER. 6.6 ALL MEMBERS AND CONNECTIONS ON THE CONTRACT DRAWINGS AND CONNECTIONS NOT SHOWN SHALL BE DESIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER, DETAILED AND SUBMITTED FOR APPROVAL AND SHOWN ON THE SHOP DRAWINGS. 6.7 ALTERNATIVE CONNECTION DETAILS MAY BE SUBMITTED ON SHOP DRAWINGS BY THE CONTRACTOR ONLY IF ACCOMPANIED BY COMPLETE STRUCTURAL CALCULATIONS PREPARED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER AND SUBMITTED FOR REVIEW. 6.8 CALCULATIONS FOR DETAILS MUST SHOW A RATIONAL ANALYSIS OF A COMPLETE LOAD PATH, INCLUDING LOCAL EFFECTS ON WEBS, FLANGES, ETC OF THE CONNECTED MEMBERS AND THE DEVICES (PLATES, SEATS, BRACKETS, BOLTS, WEBS, ETC) AFFECTING ALL CONNECTIONS. FAILURE TO SUBMIT SUCH CALCULATIONS FOR REVIEW CONCURRENT WITH SHOP DRAWING ERECTION PLANS AND DETAILS WILL BE CAUSE FOR REJECTION OF THAT SUBMITTAL. 6.8.1 ALL SHEAR TAB CONNECTIONS SUBMITTED AS AN ALTERNATE FOR APPROVAL SHALL BE DESIGNED USING A FLEXIBLE SUPPORT CONDITION. 6.8.2 BEAM AND GIRDER CONNECTIONS SHALL BE DESIGNED SUCH THAT ALL ADDITIONAL STRESSES DUE TO CONNECTION ECCENTRICITY SHALL BE DEVELOPED BY THE CONNECTION AND NOT INDUCE ANY ADDITIONAL STRESSES INTO SUPPORTING MEMBERS. 6.9 STRUCTURAL STEEL DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO THE AISC "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS - ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN" AND THE AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" - LATEST EDITIONS. 6.10 WELDING SHALL CONFORM TO THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE AWS D1.1. ELECTRODES FOR SHOP AND FIELD WELDS SHALL BE CLASS E70XX. ALL WELDING SHALL BE DONE BY QUALIFIED, CERTIFIED WELDERS PER THE ABOVE STANDARD. 6.11 SHOP AND FIELD TESTING OF WELDS AND BOLTS SHALL BE AS OUTLINED IN THE SPECIFICATIONS. 6.12 ALL FILLET WELDS SHALL BE A MINIMUM OF 5mm UNLESS NOTED OTHERWISE 6.13 THERE SHALL BE NO FIELD CUTTING OF STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT PRIOR APPROVAL OF THE CONTRACTING OFFICER. 6.14 FOR FLOOR AND ROOF OPENINGS, THE FABRICATOR SHALL VERIFY OPENING LOCATIONS WITH EQUIPMENT SELECTED AND MAKE ANY NECESSARY MODIFICATIONS AT NO ADDITIONAL COST. THE CONTRACTOR SHALL COORDINATE MECHANICAL UNITS AND OPENINGS & ARCHITECTURAL ITEMS REQUIRED FOR COMPLETE INSTALLATION OF WORK. IT IS THE RESPONSIBILITY OF FABRICATOR TO RECEIVE ALL NECESSARY INFORMATION PRIOR TO FABRICATION OF THE STEEL. 6.15 ALL STRUCTURAL STEEL SHALL BE PRIMED AS PER THE SPECIFICATIONS. 6.16 ALL PLATES NOT INDICATED SHALL BE 13mm MIN THICKNESS. ALL ANGLES NOT INDICATED SHALL BE 76x76x7.9 MIN. ALL WELDS NOT INDICATED SHALL BE 6mm MIN ALL AROUND UON. 6.17 SEE MECHANICAL, ELECTRICAL, AND PLUMBING SHEETS FOR ADDITIONAL OPENINGS NOT SHOWN. ALL OPENINGS SHALL BE FRAMED 4 SIDES WITH C200x17'S UON.		
4	CMF CFS CIP CIPL CJ CLG CLR CMU COEFF COL CONC CONT COORD CSJ CTJ DIA DIAG DIM DWG DWL EA ELEC ELEV EMBED EQUIV ETC E.W. EXT FTG GA HORIZ HRS IBC INT Kg KIP kN kPa L# LLV M MAX MBM MBMA	AMERICAN CONCRETE INSTITUTE AMERICAN INSTITUTE OF STEEL CONSTRUCTION ALTERNATE AMERICAN SOCIETY FOR TESTING AND MATERIALS AMERICAN WELDING SOCIETY ARCHITECTURAL BOTTOM BUILDING BOTTOM CENTER LINE COLD FORM METAL FRAME COLD FORMED STEEL CAST IN PLACE CAST-IN-PLACE INTEL CONTROL JOINT CEILING CLEAR CONCRETE MASONRY UNIT COEFFICIENT COLUMN CONCRETE CONTINUOUS COORDINATE CONSTRUCTION JOINT CONTROL JOINT DIAMETER DIAGONAL DIMENSION DRAWING DOWEL EACH ELECTRICAL ELEVATION EMBEDMENT EQUIVALENT ET CETERA EACH WAY EXTERIOR FOOTING GAUGE HORIZONTAL HOURS INTERNATIONAL BUILDING CODE INTERIOR KILOGRAM KIPS (1 KIP = 1,000 POUNDS) KILONEWTON KILOPASCAL ANGLE (# INDICATES SIZE) LONG LEG VERTICAL METER MAXIMUM METAL BUILDING MANUFACTURER METAL BUILDING MANUFACTURERS ASSOCIATION MECHANICAL MANUFACTURER MIDDLE MINIMUM MISCELLANEOUS MILLIMETER MEGAPASCAL METAL MAIN WIND FORCE RESISTING SYSTEM NEWTON NORTH NOT APPLICABLE NUMBER SYMBOL FOR REBAR SIZE NOT TO SCALE ON CENTER OPENING PLATE PRE-ENGINEERED REINFORCED REQUIRED SIMILAR SPECIFICATIONS STANDARD STRUCTURAL TOP TOP OF TOP ELEVATION TOP AND BOTTOM THICK TRADE MARK TYPICAL UNIFIED FACILITIES CRITERIA UNLESS OTHERWISE NOTED VERTICAL WIDTH WITH	1.0 THIS PROJECT HAS BEEN DESIGNED FOR THE WEIGHTS AND MATERIALS INDICATED ON THE SHEETS AND FOR THE LIVE LOADS INDICATED IN THE DESIGN CRITERIA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALLOWABLE CONSTRUCTION LOADS AND TO PROVIDE PROPER DESIGN AND CONSTRUCTION OF FALSEWORK, FORMWORK, STAGING, BRACING, SHEETING AND SHORING, ETC. 1.1 COORDINATE THESE SHEETS WITH THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND CIVIL SHEETS. ALL DIMENSIONS SHOWN ON THE SHEETS ARE MILLIMETERS UNLESS NOTED OTHERWISE. 1.2 THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL FLOOR AND ROOF OPENING SIZES AND LOCATIONS, EQUIPMENT PAD SIZES AND LOCATIONS, ANCHOR BOLT LAYOUTS, ETC WITH EQUIPMENT SELECTED. THE CONTRACTOR SHALL MAKE ANY REQUIRED MODIFICATIONS AT NO ADDITIONAL COST. 1.3 THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING SHEETS FOR SLEEVES, CURBS, INSERTS OR OPENINGS, ETC. NOT HEREIN INDICATED. 1.4 SLAB OPENINGS SMALLER THAN 250mm DIA TO BE CORE DRILLED IN FIELD UON. SEE MECHANICAL, ELECTRICAL AND PLUMBING SHEETS FOR LOCATIONS OF THESE OPENINGS. 1.5 WORK NOT INCLUDED ON THE SHEETS BUT IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING PLACES ELSEWHERE ON THE SHEETS SHALL BE REPEATED. 1.6 IN CASE OF CONFLICT BETWEEN THE NOTES, DETAILS AND SPECIFICATIONS THE MOST RIGID REQUIREMENTS SHALL GOVERN. 1.7 SEE ARCHITECTURAL SHEETS FOR LOCATIONS OF MASONRY AND DRYWALL NON-LOAD BEARING PARTITIONS. PROVIDE COMPRESSIBLE FIRESAFING AT TOP OF WALL AS REQUIRED BY ARCHITECTURAL SHEETS. 1.8 COORDINATE FINISHED FLOOR DATUM ELEVATION 0.0m WITH THE CIVIL SHEETS. 1.9 DESIGN PRE-ENGINEERED METAL BUILDINGS IN ACCORDANCE W/ MBMA LATEST EDITION PER DESIGN CRITERIA ON SHEET S2. 2.0 FOUNDATION NOTES 2.1 THE GEOTECHNICAL ANALYSIS FOR THIS PROJECT IS THE RESPONSIBILITY OF THE CONTRACTOR AWARDED THE WORK. DESIGN VALUES USED IN THE STRUCTURAL ANALYSIS OF THE BUILDINGS HEREIN INDICATED HAVE BEEN ASSUMED AND SHALL BE CONFIRMED AND VERIFIED AS PART OF THE GEOTECHNICAL INVESTIGATION. VALUES WHICH DO NOT MEET THE REQUIREMENTS INDICATED ON SHEET S2 SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER FOR CONSIDERATION AND DETERMINATION ON THE NEXT APPROPRIATE COURSE OF ACTION. SEE THE SPECIFICATION FOR ADDITIONAL REQUIREMENTS TO THOSE OUTLINED IN THE GEOTECHNICAL INVESTIGATION FOR EXCAVATION AND PREPARATION OF THE FOUNDATION AND THE SLAB ON GRADE SUBGRADE INCLUDING COMPACTION PROCEDURES. 2.2 EXCAVATIONS FOR FOOTINGS SHALL HAVE THE SIDES AND BOTTOMS TEMPORARILY LINED WITH 0.25mm POLYETHYLENE IF PLACEMENT OF CONCRETE DOES NOT OCCUR WITHIN 24 HRS OF THE EXCAVATION OF THE FOOTING. 2.3 FOUNDATION CONDITIONS NOTED DURING CONSTRUCTION WHICH DIFFER FROM THOSE DESCRIBED IN THE GEOTECHNICAL REPORT SHALL BE REPORTED TO THE GENERAL CONTRACTOR BEFORE FURTHER CONSTRUCTION IS ATTEMPTED. SEE PROJECT SPECIFICATIONS. 2.4 NO FOOTINGS OR SLABS SHALL BE POURED INTO OR AGAINST SUBGRADE CONTAINING FREE WATER, FROST, ICE OR LOOSE MATERIAL. FROST DEPTH ASSUMED TO BE 800MM 2.5 ALL SLAB-ON-GRADE, TRENCH BOTTOMS AND OTHER ON-GRADE INTERIOR HORIZONTAL SURFACES SHALL BE PLACED OVER A 0.25mm VAPOR RETARDER OVER A 100mm #57 STONE WATER BARRIER PLACED ON SUBGRADE PROPERLY PREPARED IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. (UON) 2.6 SEE PLUMBING, ELECTRICAL & CIVIL SHEETS FOR REQUIRED UNDERSLAB UTILITIES. 2.7 SEE ARCHITECTURAL SHEETS FOR ALL WATERPROOFING DETAILS AND MATERIALS. 2.8 IF UNDERMINING OF FOOTINGS OCCURS, FILL VOIDS WITH 15MPa CONCRETE. DO						

MINIMUM LAP SPLICES OF REINFORCING BARS IN TENSION (PER ACI 318M-05)

1. LAP SPLICES ABOVE ARE IN MILLIMETERS UON.
2. YIELD STRENGTH OF REINFORCEMENT, f_y , IS 400MPa (LAP SPLICE LENGTH IS IN MILLIMETERS).
3. CONCRETE IS NORMAL WEIGHT (2400kg/m³).
4. TOP BAR INDICATES HORIZONTAL REINFORCEMENT WHICH IS PLACED ABOVE 300mm OR MORE OF FRESH CONCRETE.
5. SEE COLUMN SCHEDULE FOR COLUMN AND SHEAR WALL VERTICAL LAP SPLICE.
6. STRAIGHT DEVELOPMENT LENGTH OF AN UNLAPPED BAR IS EQUAL TO VALUE FROM TABLE DIVIDED BY 1.3.
7. CATEGORY FOR BARS SPACED LESS THAN 4d, OR ON CENTER CORRESPONDS TO CATEGORY 1 IN THE CRSI HANDBOOK WHEREAS FOR BARS SPACED 4d, OR MORE ON CENTER CORRESPOND TO CRSI CATEGORY 5.

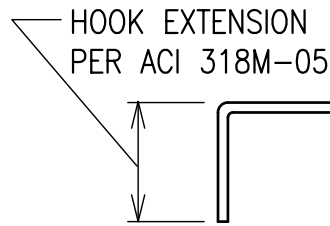
CONCRETE MATERIALS SCHEDULE

STRUCTURAL ELEMENT	f'c CONCRETE COMPRESSIVE STRENGTH @ 28 DAYS (MPa)
SLAB-ON-GRADE/TURN-DOWN SLABS	28
FLOOR SLABS	28
ALL FOOTINGS (UON)	28
MISC. CURBS, WALLS AND PADS UON	28
CAST-IN-PLACE LINTEL	28
CONCRETE FRAMING – BEAMS AND COLUMNS	28

1. ALL CONCRETE SHALL BE NORMAL WEIGHT CONCRETE. (2400 Kg/m³ UON)
2. ALL CONCRETE SHALL HAVE A MAX WATER-CEMENT RATIO OF 0.45.

STANDARD HOOKS IN TENSION PER (ACI 318M-05)

HOOK DEVELOPMENT LENGTH Ldh (mm)	
BAR SIZE	f'c 28 MPa
#10	180
#13	250
#16	300
#19	380
#22	430
#25	480
#29	560
#32	610
#36	690



1. CONCRETE IS NORMAL WEIGHT CONCRETE.
2. BAR YIELD STRENGTH, $f_y = 420 \text{ MPa}$
3. SIDE COVER REQUIREMENTS OF ACI SECT. 12.5.3.2 ARE ASSUMED TO NOT BE MET.
4. TIE OR STIRRUP REQUIREMENTS OF ACI SECT. 12.5.3.2 ARE ASSUMED TO NOT BE MET.
5. REDUCTION FOR EXCESS REINFORCEMENT IS NOT TAKEN.
6. HOOK DEVELOPMENT LENGTH IS VALID FOR 180° HOOKS ALSO.

STEEL MATERIALS SCHEDULE

STRUCTURAL ELEMENT	FY YIELD STRENGTH (MPa)	REMARKS
BEAMS & GIRDER	250	ASTM A36M ASTM A6M
COLUMNS	240	ASTM A53-95 GRADE B ASTM A6M
MISC BRACING	250	ASTM A572M ASTM A6M
CONNECTIONS, PLATES, & ALL OTHERS	250	ASTM A36M ASTM A6M
ANCHOR BOLTS	—	ASTM A36M or A307M ASTM A6M
PIPES	240	ASTM A53-95 GRADE B ASTM A6M
TUBING	345	ASTM A500-93 GRADE C ASTM A6M
HIGH STRENGTH BOLTS	—	ASTM A325M-N
WELDING ELECTRODES	—	AWS D1.1-90 E70xx

CONCRETE COVER SCHEDULE

FOOTINGS (EARTH FORMED)	70
COLUMNS / PIERS (TO TIES)	40
GRADE BEAMS OR SLAB TURNED DOWN EDGES:	
TOP	40
BOTTOM (EARTH FORMED)	70
SIDES (EARTH FORMED)	70
SIDES (BOARD FORMED)	40
	#16 BAR & SMALLER
	#19 THRU #36 BAR
	50

ELEVATED BEAMS & SLABS:	
BEAM TIES & STIRRUPS (NOT EXPOSED TO WEATHER)	40
BEAM TIES & STIRRUPS (EXPOSED TO WEATHER)	50
FLOOR SLABS (NOT EXPOSED TO WEATHER)	20
FLOOR SLABS (EXPOSED TO WEATHER)	
#19 & LARGER	50
#13 & SMALLER	40
ROOF SLAB BARS	25

SLABS-ON-GRADE (NO EXPOSURE TO WEATHER) FROM TOP	20
SLABS-ON-GRADE (EXPOSURE TO WEATHER) FROM TOP	40

UTILITY TUNNEL WALLS, RETAINING WALLS AND SHEAR WALLS, (NO SURFACES SHALL BE EARTH FORMED) EARTH SIDE AND FRONT SIDE (EXPOSED TO WEATHER):	
#16 BAR AND SMALLER	40
#19 THRU #36 BAR	50

PROVIDE STANDARD BAR CHAIRS AND SPACERS AS REQUIRED TO MAINTAIN CONCRETE PROTECTION SPECIFIED.

SPREAD FOOTING AND PIER SCHEDULE

MARK	FOOTING SIZE			FOOTING REINFORCING	PIER				REMARKS
	LENGTH (mm)	WIDTH (mm)	THICKNESS (mm)		SIZE (mm)	T/PIER	VERT. BARS	TIES	
F1	2500	2500	300	(7)-#16 EW T&B	900	-150	(8)-#19	2 SETS #13 @ 125	HAIRPINS REQ'D. SEE DETAILS
F2	1800	1800	300	(5)-#16 EW T&B	900	-150	(8)-#19	#13 @ 250 T P 2 @ 75	----
F3	2500	2500	300	(7)-#16 EW T&B	1000 x2080	-150	(16)-#19	2 SETS #13 @ 125	HAIRPINS REQ'D. SEE DETAILS

1. DIMENSIONS NOTED ARE MILLIMETERS (mm) UON
2. T/PIER ELEV GIVEN IN REFERENCE TO 0.0 mm DATUM OR FINISH FLOOR ELEV/SLAB ELEV, DISTANCE ABOVE OR BELOW INDICATED AS NEGATIVE OR POSITIVE.
3. PIER SIZE INDICATED IS SQUARE (DIMENSION SAME IN BOTH DIRECTIONS) UON

US Army Corps
of Engineers

Afghanistan
Engineer
District

[illegible]

DESIGNED BY: WJJ	DATE: 09-30-09
DWN BY: RCG	SUBMITTED BY: BAKER
CHK BY: CWW	FILE NO.: ANPDS-003XXX

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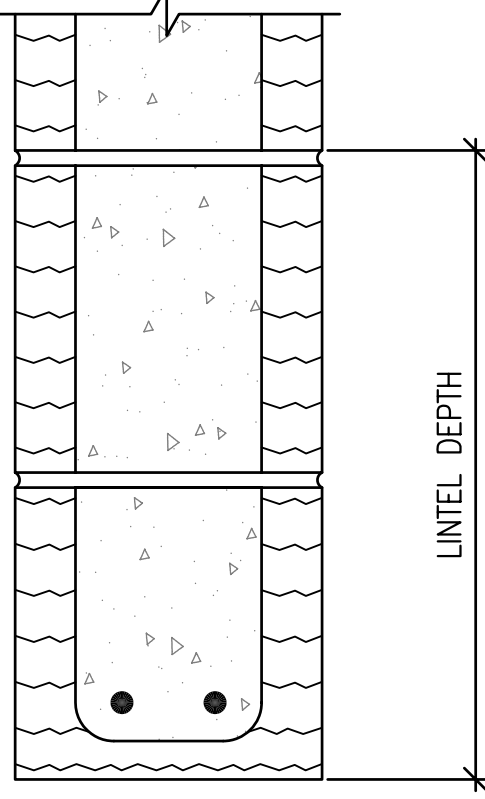
GENERAL NOTES

SHEET
REFERENCE
NUMBER:

S3

OPENING TYPE OR SIZE, BEAM LOCATION OR TYPE	MAX SPAN (mm)	BEAM DEPTH (mm)	MAIN REINFORCING			SHEAR REIN	STIRRUPS
			TOP	BOTTOM	OTHER		
EXT WALL OPENING, 1-STORY BLDG	1800	400	(2)-#13	(2)-#13		----	
EXT WALL OPENING, 1-STORY BLDG	900	200		(2)-#13		----	
INT WALL OPENING, NON-BEARING	2400	400		(2)-#13		----	
INT WALL OPENING, NON-BEARING	1800	200		(2)-#13		----	
INT WALL OPENING, NON-BEARING	900	200		(2)-#13		----	
INT WALL OPENING, SHEAR WALL	900	200		(2)-#13		----	
INT WALL OPENING, SHEAR WALL	1800	200	(2)-#13	(2)-#13		----	
INT WALL OPENING, SHEAR WALL	2400	400	(2)-#16	(2)-#16		#13 @ 300	

1. STRUCTURAL SHEETS DO NOT INDICATE ALL OPENINGS IN MASONRY WALLS. VERIFY NUMBER, SIZE AND LOCATION OF ALL OPENINGS IN MASONRY WALLS FROM ARCHITECTURAL SHEETS AND APPROVED PLUMBING, MECHANICAL, AND ELECTRICAL SHOP DRAWINGS.
2. PROVIDE 200mm BEARING EA END FOR 200mm DEEP CMU LINTEL PROVIDE 400mm BEARING EA END FOR 400mm DEEP CMU LINTEL.
3. FOR HEAD DETAILS REFER TO ARCHITECTURAL SHEETS.
4. REINFORCING SHALL BE ASTM A615M, GRADE 400. CONCRETE FOR CAST-IN-PLACE BEAMS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 28 MPa AT 28 DAYS.
5. CONTRACTOR SHALL SUBMIT FOR APPROVAL SHOP DRAWINGS AND SCHEDULES SHOWING SIZE, DETAILS, LOCATIONS, ETC FOR ALL CAST-IN-PLACE BEAMS IN CMU WALLS.



TYPICAL CMU LINTEL DETAIL

SCALE: NTS

NOTE:
1. SEE SCHEDULE THIS SHEET FOR
REINFORCING & LINTEL DEPTH

MAXIMUM CMU WALL UNSUPPORTED HEIGHT OR LENGTH			
	WALL THICKNESS (mm)	EXTERIOR WALL NON-LOAD BEARING (mm)	INTERIOR NON-LOAD BEARING WALL (mm)
MAX HEIGHT OR LENGTH BETWEEN SUPPORTS	200	4800	7200

NOTE: CMU WALL MAXIMUM LATERAL SUPPORT SPACING GIVEN IN SECTIONS AND DETAILS SHALL SUPERSEDE THE ABOVE SCHEDULE REQUIREMENTS.

MASONRY REINFORCING MINIMUM LAP SPLICES	
BAR SIZE	BASIC LAP SPLICE L _d FOR CMU REINFORCING (mm)
#10	450
#13	600
#16	750
#19	900
#22	1050
#25	1200

TYPICAL CMU WALL REINFORCING SCHEDULE						
WALL TYPE OR LOCATION	WALL THICKNESS (mm)	CONT VERT REINF (CENTERED IN CMU, UON)	CONT CAST IN PLACE BOND BEAM			REMARKS
			DEPTH (mm)	REINF (BOTT UON)	MAX BOND BEAM VERT SPACING (mm)	
ALL PERIMETER/EXTERIOR WALLS (UON)	200	1-#16 @ 600	200	2-#16	1200	-----
NON-LOAD BEARING INTERIOR WALLS WITH TOP AND BOTT SUPPORTS	200	1-#13 @ 1200	200	2-#16	1200	-----

NOTES:

1. REINFORCING SIZES AND SPACING GIVEN IN SECTIONS AND DETAILS SHALL SUPERSEDE THE ABOVE SCHEDULE REQUIREMENTS.
2. PROVIDE CONTINUOUS CAST IN PLACE CONCRETE BOND BEAM AT ALL WALL LATERAL SUPPORT LOCATIONS.
3. REINFORCING INDICATED SHALL BE CONTINUOUS FOR FULL EXTENT OF SPLICE FOLLOWING THE REQUIREMENTS OF THE LAP SPLICE TABLE SHOWN ON THIS SHEET.
4. WALLS HAVE BEEN DESIGNATED AS VERTICALLY SPANNING UON AND THEREFORE MUST BE TEMPORARILY SUPPORTED DURING CONSTRUCTION UNTIL THE SUPPORTING DIAPHRAGMS (FLOOR AND ROOF SYSTEMS) HAVE BEEN COMPLETELY INSTALLED. SHORING IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. ALL CMU WALLS SHALL BE FULLY GROUTED IN LIFTS NOT EXCEEDING THOSE BY CODE (UON)
6. SEE TYPICAL CMU WALL DETAILS ON SHEET S9.



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[illegible]

<p><i>Michael Baker Jr., Inc</i> <i>A unit of Michael Baker Corporation</i> 1000 Independence Business Park 1000 Independence Business Park Moon Township PA 15108 www.mbakercorp.com</p>	<p>DESIGNED BY: WJJ</p> <p>DWN BY: RCG</p> <p>CHK BY: CWW</p>	<p>DATE: 09-30-09</p> <p>SUBMITTED BY: BAKER</p> <p>FILE NO: ANPSDS-004XXX</p>
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AFGHAN NATIONAL POLICE
STANDARD DESIGN
TRAINING BUILDING
ELECTRIC HEAT OPTION

GENERAL NOTES

SHEET
REFERENCE
NUMBER:

S4

100% SUBMISSION



1. REFER TO SHEETS S10 S4 FOR STRUCTURAL NOTES, BASIS OF DESIGN SYMBOLS AND ABBREVIATIONS.
2. PRE-ENGINEERED BUILDING MANUFACTURER SHALL COORDINATE ALL LOADING REQUIREMENTS INDICATED ON THE SHEETS AND SPECIFICATIONS WITH OTHER TRADES.
3. PRE-ENGINEERED BUILDING COLUMN BASES SHALL BE DESIGNED AS PINNED ONLY.
4. LOCATIONS OF PORTAL FRAMES HAVE BEEN SHOWN IN PLAN AND SHALL NOT BE MODIFIED UNLESS APPROVED BY THE CONTRACTING OFFICER.
5. PRE-ENGINEERED BUILDING MANUFACTURER SHALL COORDINATE ALL HANGING LOADING FROM EQUIPMENT OR ARCHITECTURAL ELEMENTS AND INCLUDE IN THE DESIGN OF THE FRAMING.
6. SEE SPECIFICATION FOR LATERAL DRIFT REQUIREMENTS.
7. BUILDING DOES NOT NEED PROVISIONS FOR FUTURE EXPANSION AT END WALLS.
8. PRE-ENGINEERED BUILDING MANUFACTURER IS RESPONSIBLE TO DESIGN ALL JAMB AND HEAD CONDITION SUPPORT SUB-FRAMING AS REQUIRED FOR THE LOADING INDICATED AND THE REQUIREMENTS OF THE ATTACHED COMPONENTS.
9. SEE CMU WALL REINFORCING SCHEDULE ON SHEET S4.

[illegible]

DESIGNED BY: WJJ	DATE: 09-30-09
DWN BY: RCG	SUBMITTED BY: BAKER
CHK BY: CWW	FILE NO.: ANPSDS-106XXX

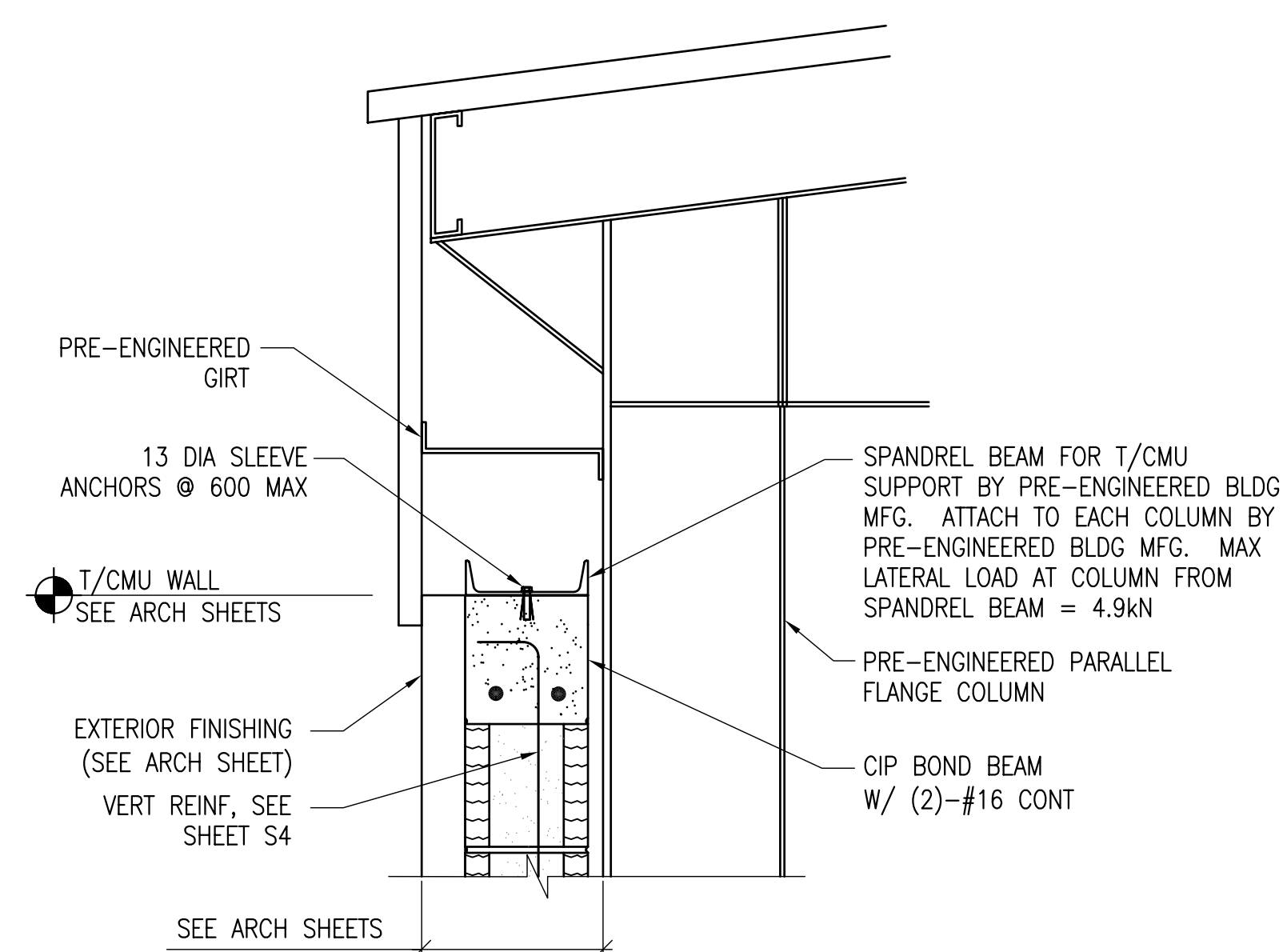
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ROOF FRAMING PLAN

36

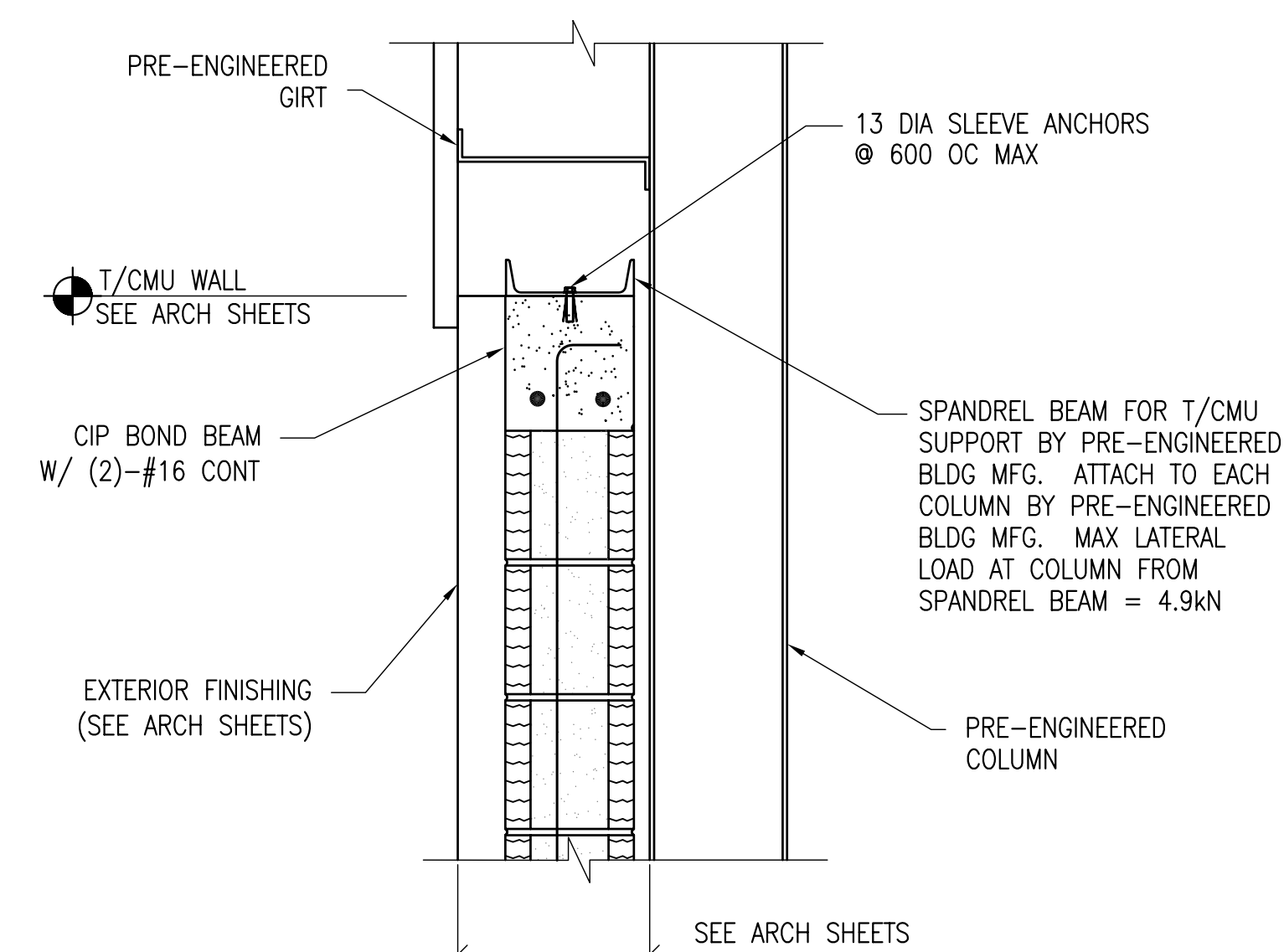
100% SUBMISSION



NOTE:
SEE SHEET S4 FOR VERT REINF SIZE AND SPACING (TYP)

SECTION

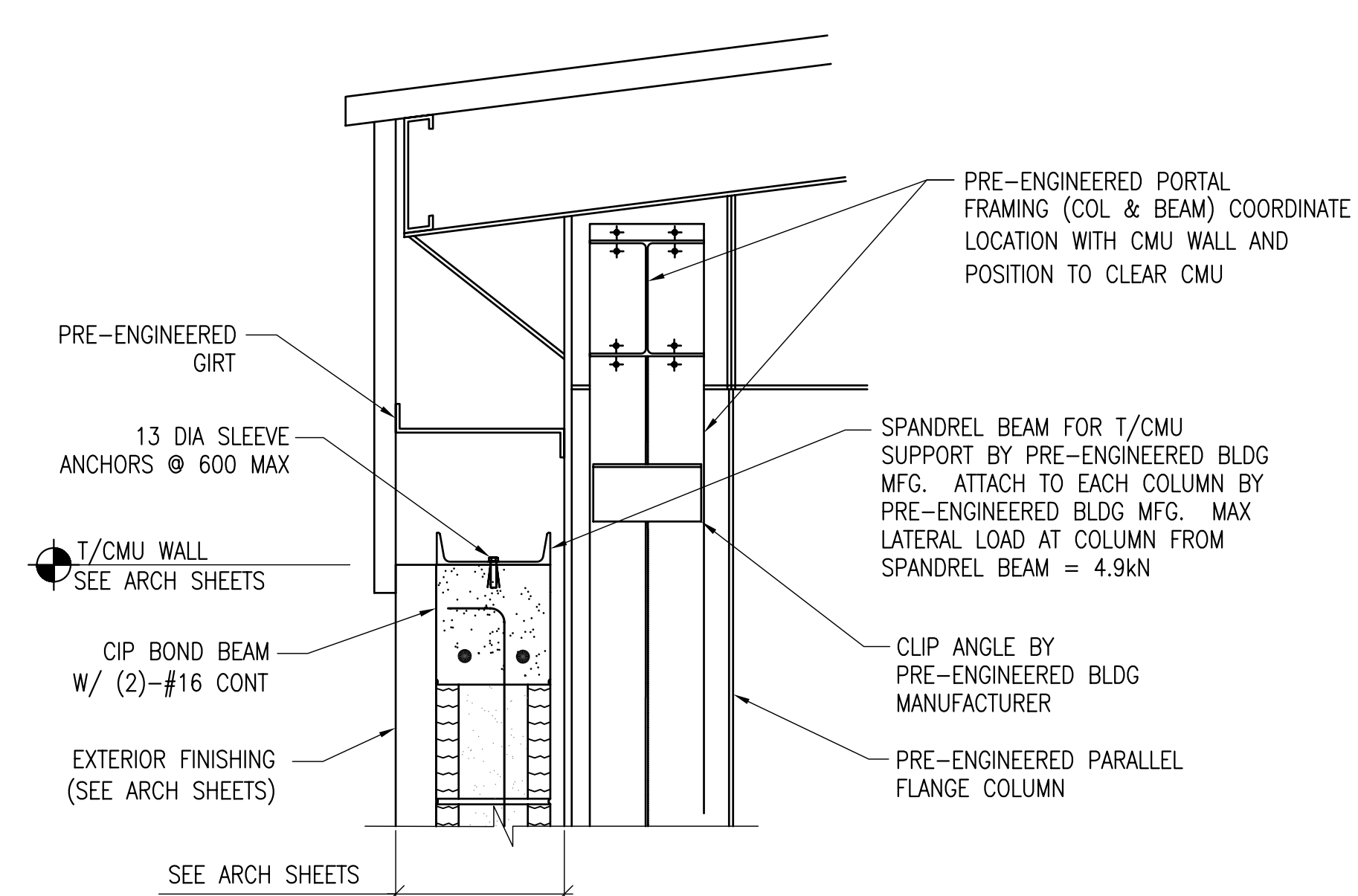
SCALE: 1:10



NOTE:
SEE SHEET S4 FOR VERT REINF SIZE AND SPACING (TYP)

SECTION

SCALE: 1:10



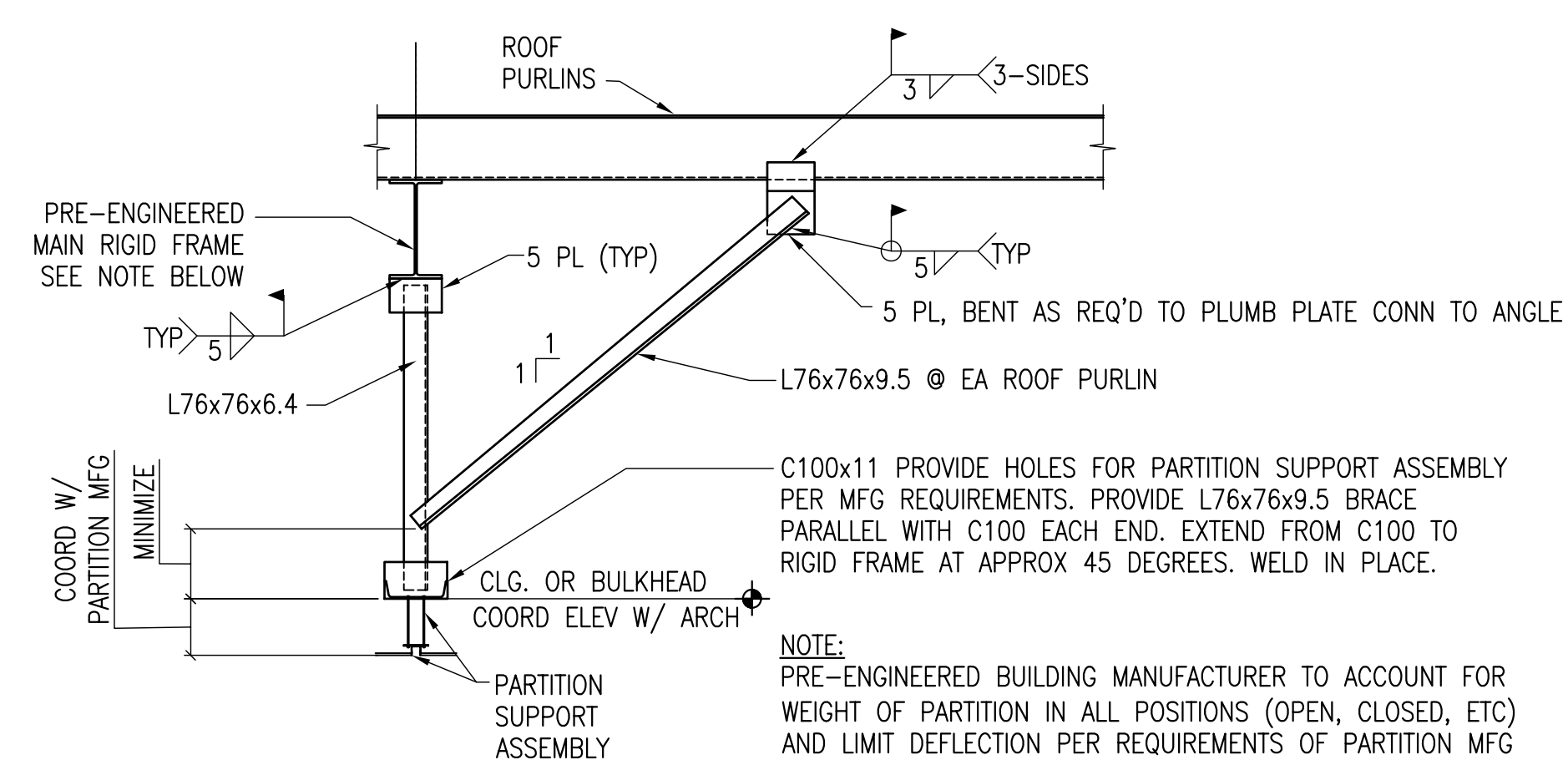
NOTE:
SEE SHEET S4 FOR VERT REINF SIZE AND SPACING (TYP)

SECTION

SCALE: 1:10

2

S6 | S8

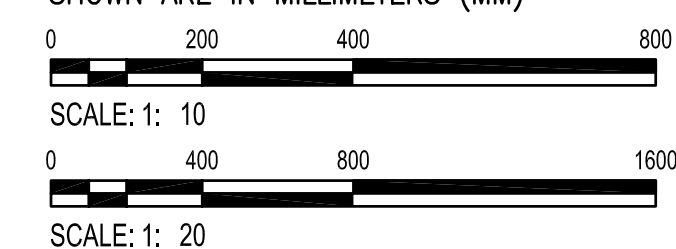


NOTE:
PRE-ENGINEERED BUILDING MANUFACTURER TO ACCOUNT FOR WEIGHT OF PARTITION IN ALL POSITIONS (OPEN, CLOSED, ETC) AND LIMIT DEFLECTION PER REQUIREMENTS OF PARTITION MFG COORD LOCATION, EXTENT, HEIGHT AND WEIGHT OF PARTITION WITH MANUFACTURER AND ARCH SHEETS. IN ADDITION, PRE-ENGINEERED BUILDING MFG SHALL INCLUDE ADDITIONAL WEIGHTS FROM BULKHEADS AND APPURTENANCES, ETC

SECTION

SCALE: 1:20

UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS
SHOWN ARE IN MILLIMETERS (MM)



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[illegible]

DESIGNED BY:	DATE:
WJW	09-30-09
OWN BY:	SUBMITTED BY:
RCG	BAKER
CHK BY:	FILE NO.:
CWW	ANFSDS-308XXX

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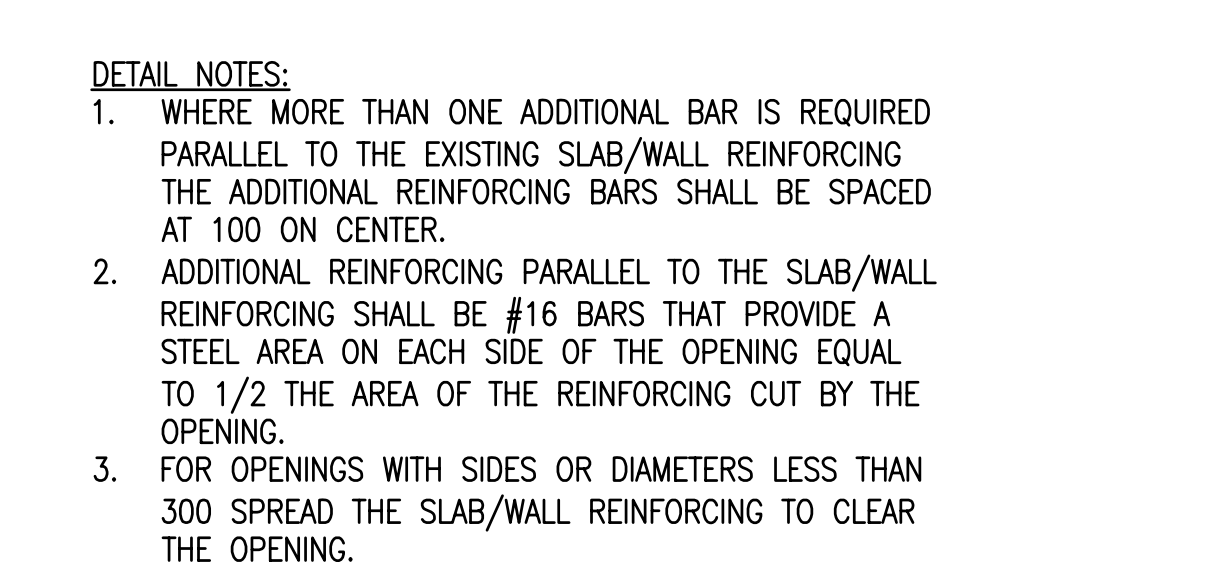
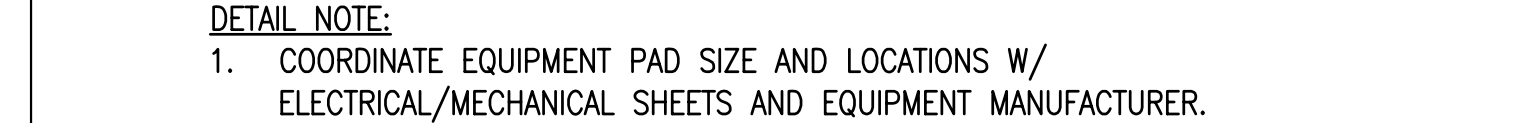
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TRAINING BUILDING
ELECTRIC HEAT OPTION

SECTIONS & DETAILS

SHEET
REFERENCE
NUMBER:

S8

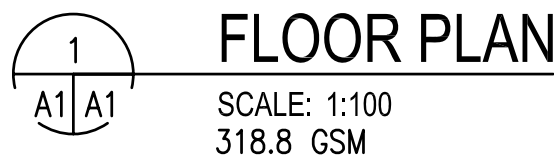
100% SUBMISSION



UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS
SHOWN ARE IN MILLIMETERS (MM)







100% SUBMISSION

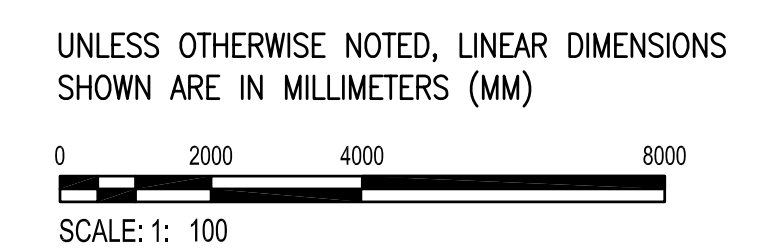


- | | | |
|----|----------|--|
| 3. | WALLS: | METAL LINER PANEL
ABOVE PAINTED PLASTER |
| | FLOOR: | SEALED CONCRETE |
| | CEILING: | METAL LINER PANEL |
| 4. | WALLS: | PAINTED PLASTER |
| | FLOOR: | SEALED CONCRETE |
| | CEILING: | EXPOSED METAL DECK |

- A. INTERIOR PARTITIONS ARE 3000 MM HIGH. INTERIOR PARTITIONS SHALL BE 200 MM CMU UNLESS OTHERWISE NOTED.
- B. OPENINGS FOR DOORS SHALL BE LOCATED A MINIMUM OF 200 MM FROM THE ADJACENT WALL.
- C. SURFACES TO BE PAINTED SHALL BE CLEAN AND FREE OF FOREIGN MATTER BEFORE APPLICATION OF PAINT. CLEANING SHALL BE SCHEDULED SO THAT DUST AND OTHER CONTAMINANTS WILL NOT FALL ON WET, NEWLY PAINTED SURFACES.
- D. CONCRETE AND INTERIOR MASONRY SURFACES GROUTED SOLID SHALL BE ALLOWED TO DRY AT LEAST 30 DAYS BEFORE PAINTING EXCEPT CONCRETE SLAB ON GRADE WHICH SHALL BE ALLOWED TO CURE 90 DAYS BEFORE PAINTING.
- E. PAINTS CONTAINING LEAD IN EXCESS OF 0.06 PERCENT BY WEIGHT OF THE TOTAL NONVOLATILE CONTENT SHALL NOT BE USED.
- F. MERCURIAL FUNGICIDES SHALL NOT BE USED IN OIL-BASE PAINT.
- G. REMOVE LOOSE DIRT AND CLEAN SURFACES BEFORE PAINTING. APPLY PAINT TO INTERIOR STRUCTURAL RIGID FRAMINGS AND CEILINGS AND TEST FOR ADHESION. PRIMER COAT FOR MASONRY. INITIAL FIRST COAT WITH AN ACRYLIC LATEX PAINT FOR EXTERIOR SURFACES AND A SECOND COAT WITH A WATER REPELLENT ACRYLIC LATEX PAINT.
- H. METAL DOORS AND FRAMES SHALL RECEIVE A PRIMER COAT PLUS TWO COATS OF PAINT.
- I. DIMENSIONS ARE TO STRUCTURAL COLUMN GRID, EDGE OF WINDOW OPENINGS, AND TO HINGE SIDE OF DOOR OPENINGS.

1. OPERABLE PARTITION - RE: DETAIL 7/A5
2. CONCRETE STOOP - RE: DETAIL 2/A5
3. TWO-PIECE WALL THIMBLE AND TRIM PLATE FOR
OPTIONAL WOOD BURNING STOVE CHIMNEY PIPE.
STOVE AND PIPE BY OTHERS.
4. LINE OF CANOPY ABOVE - RE: DETAILS ON A6
5. SEE STRUCTURAL FOR CONCRETE CEILING
DETAILS

- | | |
|---|---------------------------|
|  | DOOR TYPE, SEE SHEET A5 |
|  | KEY NOTE |
|  | FIRE EXTINGUISHER CABINET |
|  | ROOM FINISH TYPE |

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DESIGNED BY:	DATE:
KRC	09-30-09
DWN BY:	SUBMITTED BY:
PFF	BAKER
CHK BY:	FILE NO.:
NLJ	ANPSDA-101XXX

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FLOOR PLAN

SHEET
REFERENCE
NUMBER:
A1

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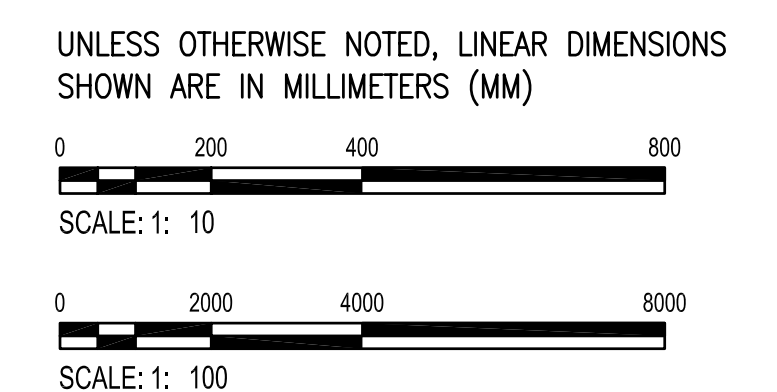


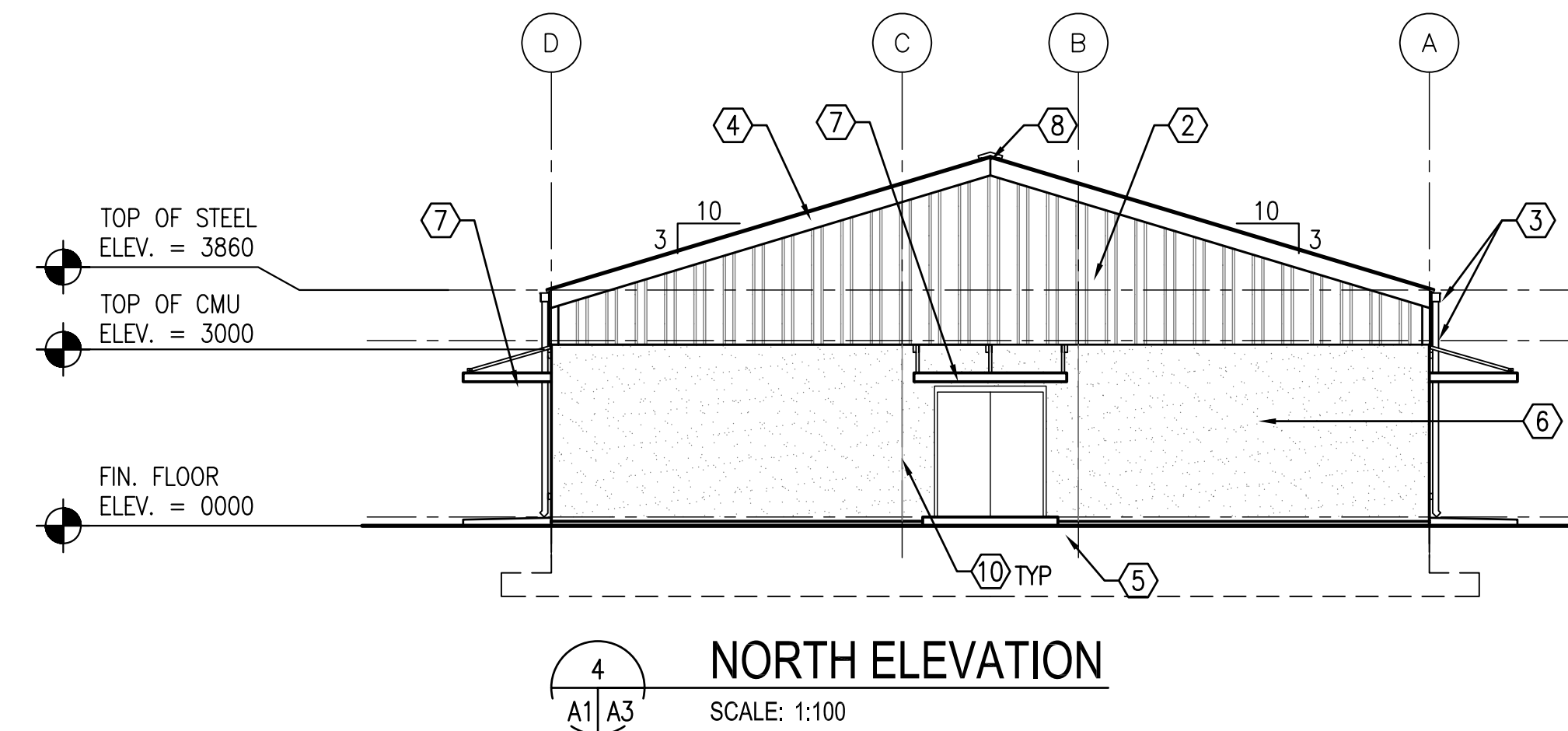
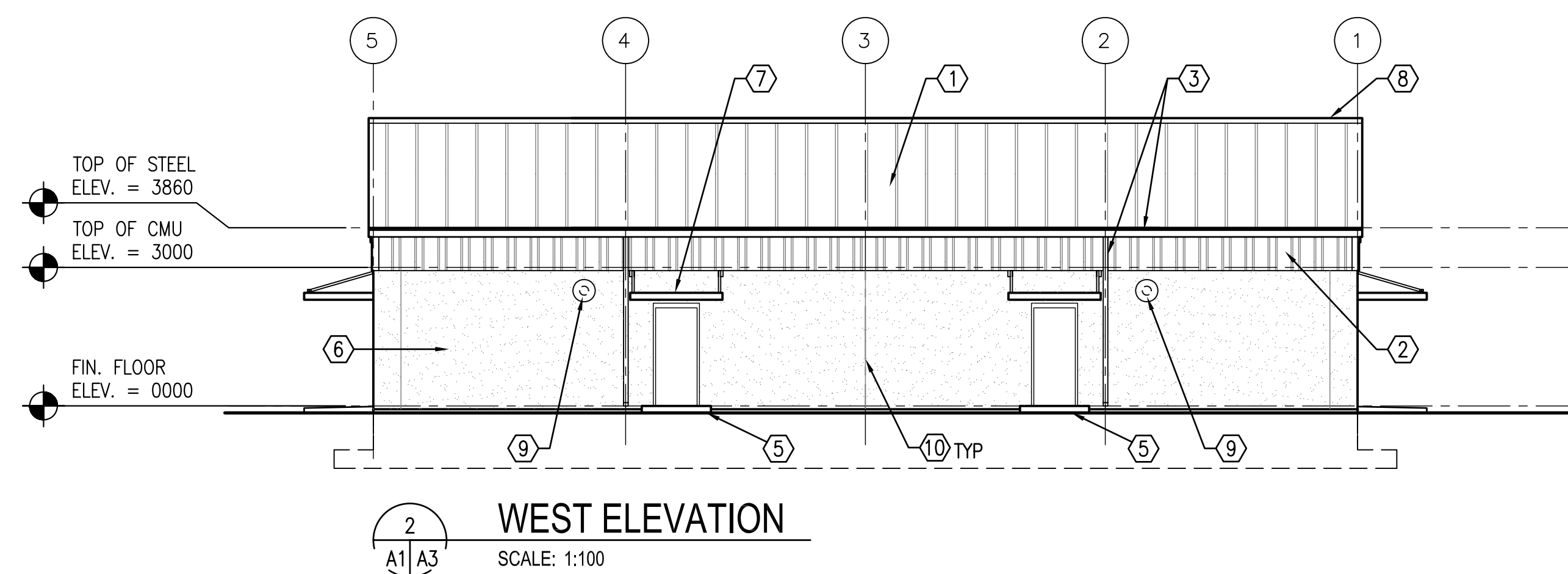
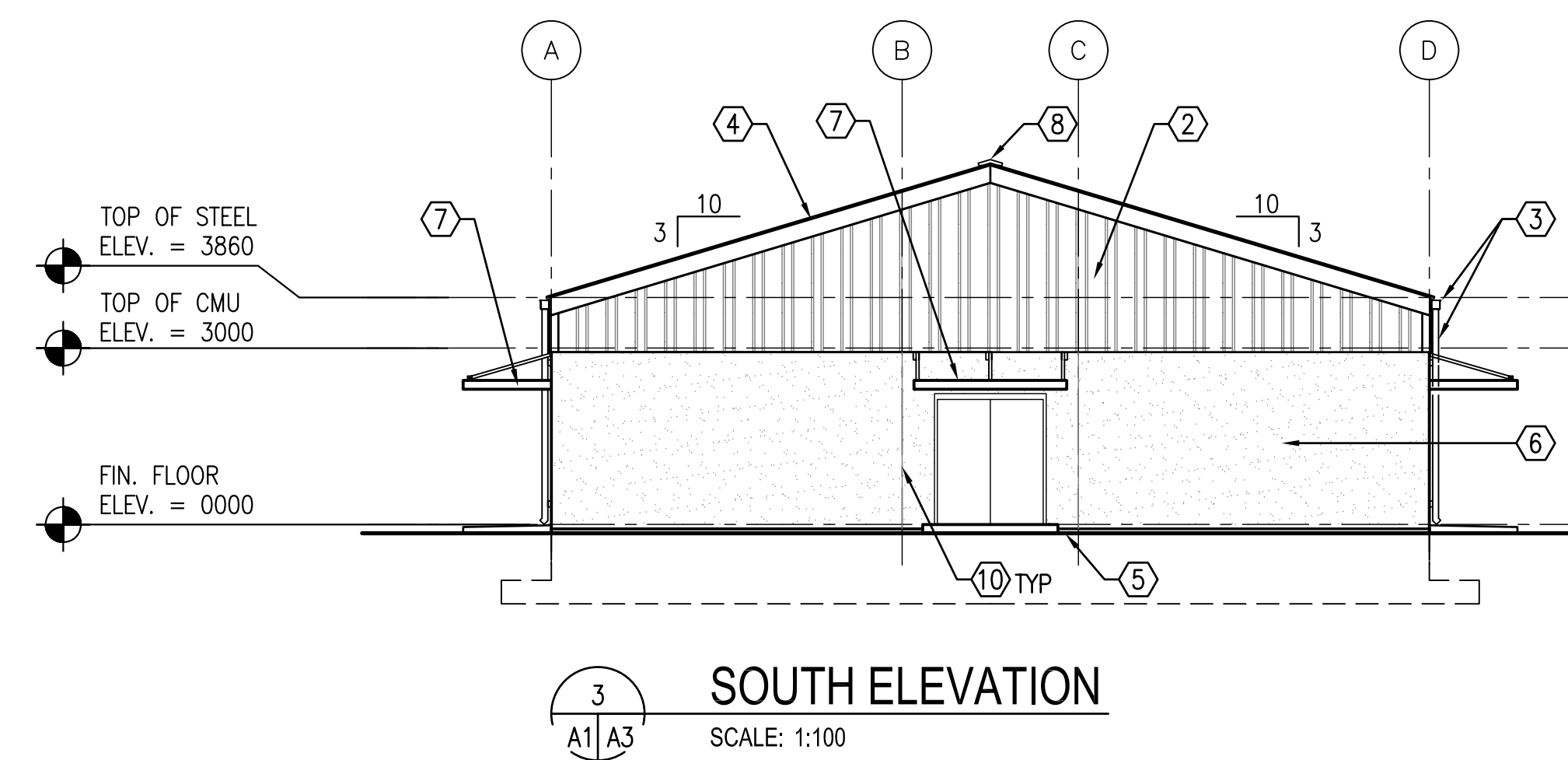
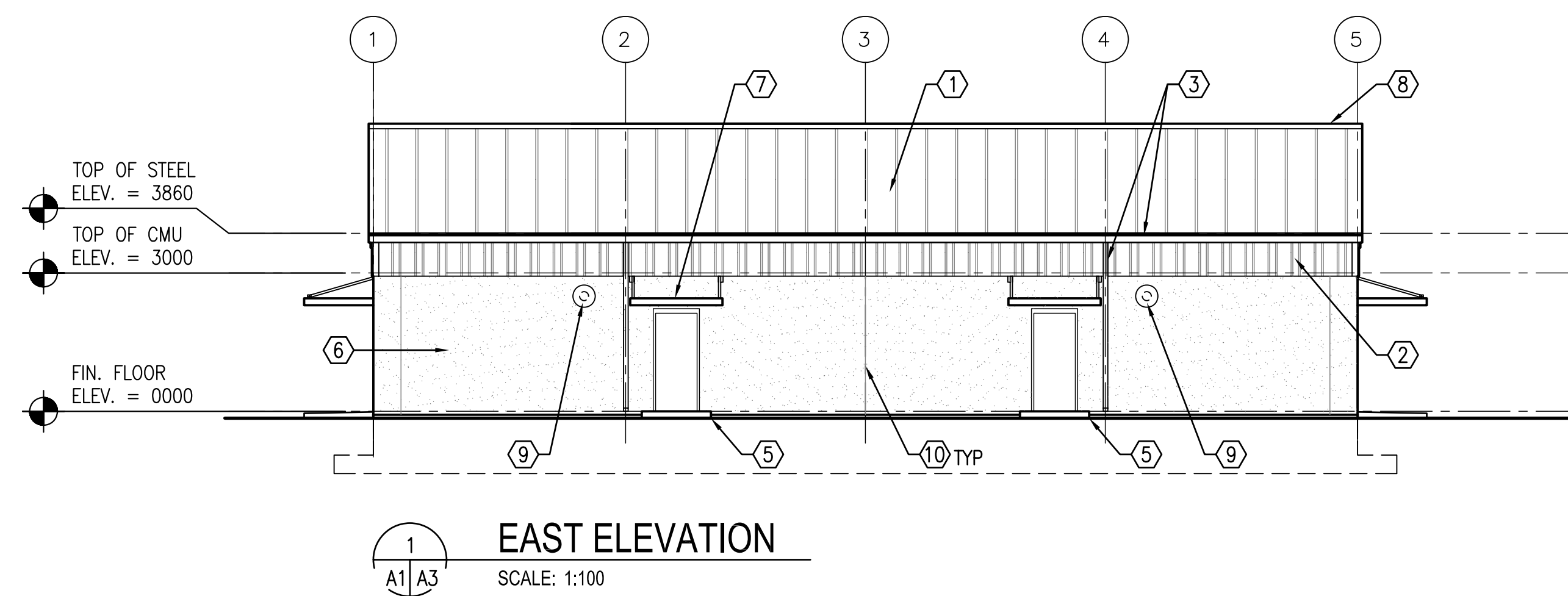
1. PRODUCTS BY METAL BUILDING MANUFACTURER:
 - A. PRE-FINISHED METAL ROOF PANELS.
 - B. STEEL PURLINS
 - C. VINYL FACED FIBERGLASS INSULATION.
 - D. ACCESSORIES.
 - E. GUTTERS, DOWNSPOUTS AND SUPPORTS.
2. ROOFING INSTALLATION SHALL BE CONTINUOUS WITH ALL OPERATIONS PROCEEDING TOGETHER. BEFORE CESSATION OF WORK ON EACH WORKING DAY OR WHEN WORK IS INTERRUPTED DUE TO RAINFALL OR OTHER CAUSES, THE ROOF SHALL BE SEALED AGAINST WATER INTRUSION.

1. CONTINUOUS RIDGE FLASHING
2. METAL ROOF PANELS OVER STEEL PURLINS WITH VINYL FACED FIBERGLASS INSULATION BY METAL BUILDING MANUFACTURER.
3. METAL GUTTERS AND DOWNSPOUT BY METAL BUILDING MANUFACTURER.
4. LINE OF BUILDING WALL BELOW.
5. METAL CANOPY -- RE: SHEET A6.

SHEET
REFERENCE
NUMBER:
A2

100% SUBMISSION



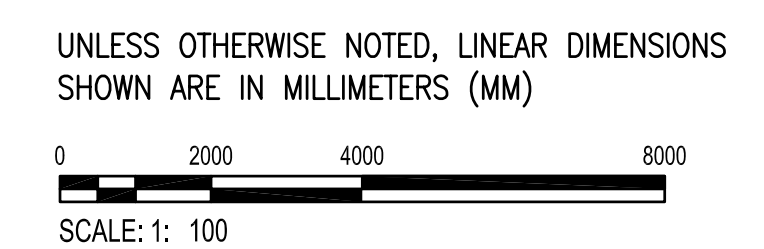


KEY NOTES:

1. PRE-FINISHED METAL ROOF PANELS BY METAL BUILDING MANUFACTURER.
2. PRE-FINISHED METAL WALL PANELS BY METAL BUILDING MANUFACTURER.
3. METAL GUTTERS AND DOWNSPOUTS BY METAL BUILDING MANUFACTURER, TYPICAL
4. RAKE TRIM BY METAL BUILDING MANUFACTURER
5. CONCRETE STOOP – RE: DETAIL A5
6. STUCCO AND RIGID INSULATION SYSTEM OVER CMU.
7. METAL CANOPY
8. CONTINUOUS RIDGE FLASHING
9. 275 MM SLEEVE THROUGH WALL WITH CAP FOR FUTURE WOOD BURNING STOVE. MOUNT SLEEVE 2400 MM ABOVE FINISH FLOOR. STOVE BY OTHERS.
10. CMU CONTROL JOINT, TYPICAL.

GENERAL NOTES:

1. COORDINATE SIZE AND LOCATION OF OPENINGS FOR MECHANICAL ITEMS WITH MECHANICAL DRAWINGS.
2. PROVIDE STRUCTURAL LINTELS AS REQUIRED - RE: STRUCT.
3. PROVIDE CMU CONTROL JOINT AT EACH STEEL COLUMN - RE: DETAIL 6/A4.



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[illegible]

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DWN BY: PFF	SUBMITTED BY: BAKER
CHK BY: NLJ	FILE NO.: ANPSDA-203XXX

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EXTERIOR ELEVATIONS

SHEET
REFERENCE
NUMBER:

A3

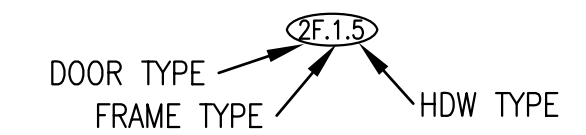
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HW-1 1-1/2 PR HINGES
1 EA EXIT DEVICE, SURFACE MOUNTED F08
1 EA CYLINDER, GRADE 1
1 EA DOOR CLOSER, C02061,LOW RESISTANCE
1 EA THRESHOLD J32130

HW-4 1-1/2 PR HINGES
1 EA LOCKSET W/LEVERS. GRADE 1
1 EA STOP L02101 OR L02161

HW-9 3 PR HINGES
2 EA EXIT DEVICE, SURFACE MOUNTED F08
2 EA CYLINDER. GRADE 1
2 EA DOOR CLOSER, C02061,LOW RESISTANCE
1 EA THRESHOLD J32130
1 EA REMOVEABLE MULLION
1 EA COORDINATOR

[illegible]

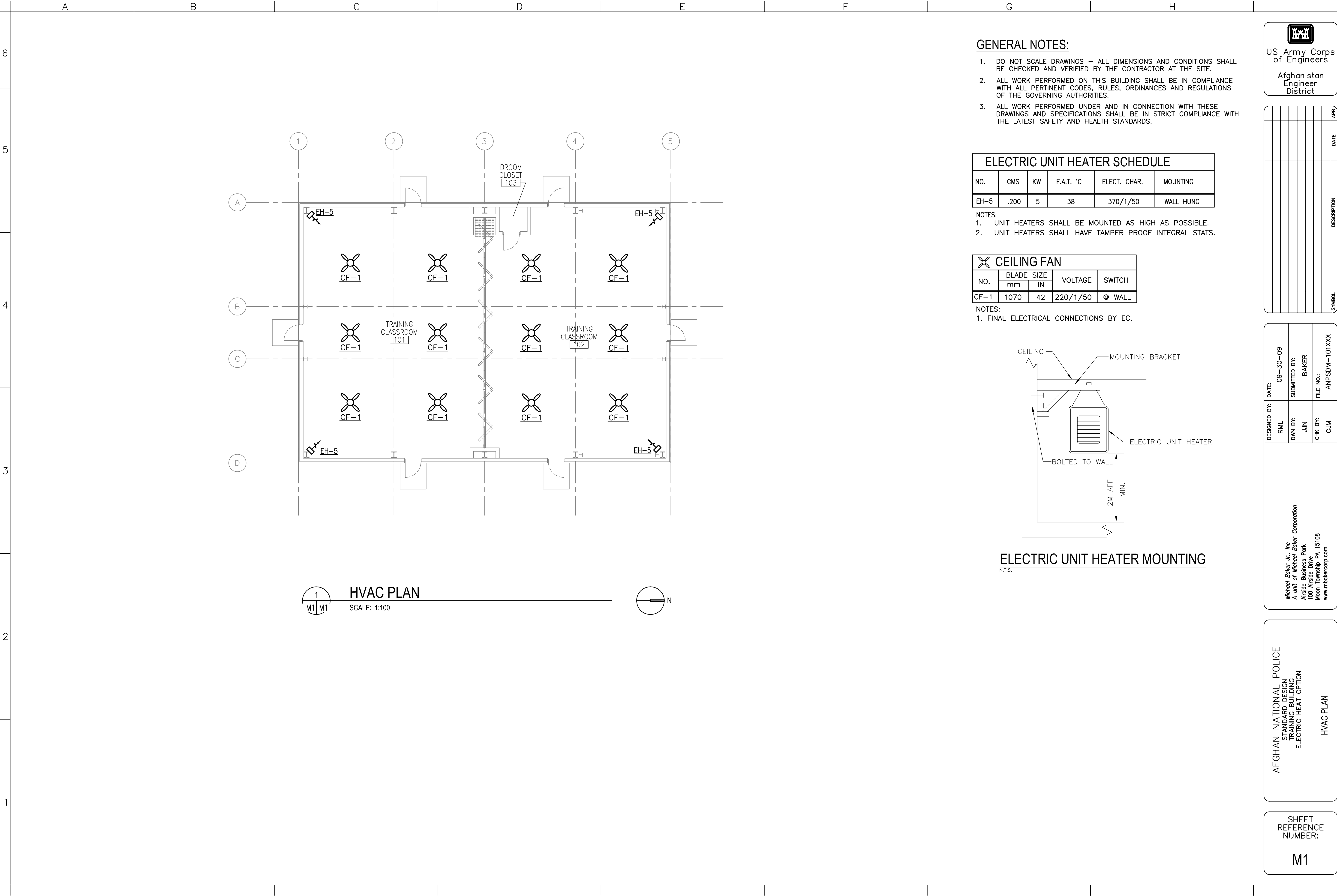
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DWN BY:	PFF	SUBMITTED BY:	BAKER
CHK BY:	NLJ	FILE NO.:	ANPSDA-505XXX

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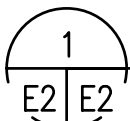
SHEET
REFERENCE
NUMBER:

A5

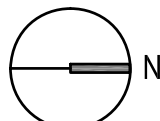
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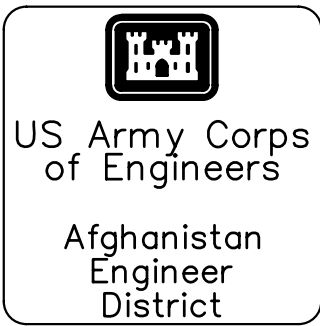




SCALE: 1:100



- 1 PANEL C1.
- 2 PROVIDE POWER CONNECTION TO ELECTRIC UNIT HEATER #5. SEE DRAWINGS #M1 AND #E8 FOR MORE INFORMATION.

[illegible]

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DWN BY:	JRG	SUBMITTED BY:	BAKER
CHK BY:	JRG	FILE NO.:	ANPSDE-102XXX

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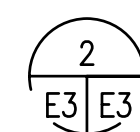
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TRAINING BUILDING
ELECTRIC HEAT OPTION

POWER AND SYSTEMS PLAN

SHEET
REFERENCE
NUMBER:
E2



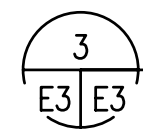
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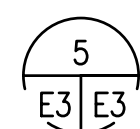
SCALE: N.T.S.



SCALE: N.T.S.



SCALE: N.T.S.



SCALE: N.T.S.

SHEET
REFERENCE
NUMBER:

E3

PANELBOARD _____ C1 _____ SURFACE _____ MOUNTED _____ ASYM. A.I.C. MIN.																
AMP. MAIN LUGS (OR) _____ 100 _____ AMP. MAIN BREAKER W/ _____ 100 _____ AMP. TRIP _____																
CIRCUIT BREAKER TYPE 380/220 VOLTS _____ 1 _____ PHASE _____ 3 _____ WIRE _____ 50 _____ HZ _____ 100 _____ AMP. BUS _____																
CIR. NO.	TRIP AMPS	WIRE NO.	WIRE MM ²	GND MM ²	CONDUIT MM	LOAD SERVED	LOAD-V.A.		LOAD-V.A.	LOAD SERVED	CONDUIT MM	GND MM ²	WIRE MM ²	CIR. NO.	TRIP AMPS	CIR. NO.
						AØ	BØ	AØ	BØ							
1	20	1	4.0	4.0	20	LIGHTING – 101	1.5	1.5		LIGHTING – 102	20	4.0	4.0	1	20	2
3	20	1	4.0	4.0	20	RECEPTACLES – 102		1.2	1.2	RECEPTACLES – 101, 102	20	4.0	4.0	1	20	4
5	20	1	4.0	4.0	20	RECEPTACLES – EXTERIOR	1.2	0.5		F.A.C.P.	20	4.0	4.0	1	20	6
7	20	1	4.0	4.0	20	RECEPTACLES – 101		1.2	2.5	ELECTRIC HEAT – 102	20	4.0	4.0	2	20	8
9	20	2	4.0	4.0	20	ELECTRIC HEAT – 101	2.5	2.5	2.5	ELECTRIC HEAT – 102	20	4.0	4.0	2	20	10
11																
13	20	2	4.0	4.0	20	ELECTRIC HEAT – 101	2.5	2.5	2.5	ELECTRIC HEAT – 102	20	4.0	4.0	2	20	12
15																
17	20	1				SPARE			1.2	CEILING FANS	20	4.0	4.0	1	20	14
19	20	1				SPARE				CEILING FANS	20	4.0	4.0	1	20	16
21	20	1				SPARE				SPARE				1	20	18
23	20	1				SPARE				SPARE				1	20	20
25	20	1				SPARE				SPARE				1	20	22
27	20	1				SPARE				SPARE				1	20	24
29	20	1				SPARE				SPARE				1	20	26
31	20	1				SPARE				SPARE				1	20	28
33	20	1				SPARE				SPARE				1	20	30
35	20	1				SPARE				SPARE				1	20	32
37	20	1				SPARE				SPARE				1	20	34
39	20	1				SPARE				SPARE				1	20	36
41	20	1				SPARE				SPARE				1	20	38
										SPARE				1	20	40
										SPARE				1	20	42
							7.7	7.4	7.0	6.2						
TOTAL CONN. LOAD _____ KVA. _____ 70 _____ % DEMAND = ESTIMATED DEMAND LOAD _____ 19.9 _____ SUPPLIED FROM SWITCHGEAR MAIN DISTRIBUTION																
PER PHASE (KVA): AØ 14.7 BØ 13.6 _____																

- MAIN BREAKER SHALL BE 3P EARTH GROUND TYPE

[illegible]

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		DWN BY:	JRG	SUBMITTED BY:	BAKER
		CHK BY:	JRG	FILE NO.:	ANPSDE-605XXX

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TRAINING BUILDING
ELECTRIC HEAT OPTION

SHEET
REFERENCE
NUMBER:

E5

100% SUBMISSION